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COLMAN'S RURAL WORLD.

DEVOTED TO AGRICULTURE HORTICULTURE HORSES CATTLE SHEEP SWINE ETC.

OLDEST AGRICULTURAL AND LIVE STOCK JOURNAL IN THE MISSISSIPPI VALLEY

Sixty-Seventh Year.

ST. LOUIS, MO., SEPTEMBER 10, 1914.

Volume LXVII. No. 37.



IN THE POULTRY YARD

CARE OF THE CHICKS.

By September all the chicks will be past the danger point, but they should be given the best of care to keep them growing. Give them as much free range as possible, for this is the leading element in securing rapid growth and strong development in raising chickens. Feed them good wholesome grains and keep plenty of fresh, cool water and grit before them at all times. Have your coops roomy to avoid crowding and suffering during the hot nights of the summer, and keep them clean and free from lice. A lousy chicken cannot develop, and if you keep on the lookout for them you will have little or no trouble with the pests. As soon as they can be distinguished, separate the cockerels from the pullets; this gives them a better chance to develop than if the cockerels were allowed to run with them. Get the pullets into their winter quarters early so they will have been accustomed to their new places and get to laying before cold weather sets in, says American Cultivator.

Care of Moulting Birds.

During the molt of the old birds, they should have the best of care and some changes should be made in their feeding to aid them in the production of the new coat of feathers. After they begin to moult I reduce their ration of wheat, oats and the like and feed largely corn, all they will eat. A small amount of linseed oil meal added to their mash will be very beneficial. Provide plenty of shade and make the poultry houses as cool and well ventilated as possible for the comfort of the fowls. Look out for lice and keep the houses and runs clean. Feed regular and keep cool, fresh water before them, and when they get their new coat of feathers on they will be ready to produce eggs that bring the high prices.

Culling the Birds.

Every month should be a culling month, but August should be a banner one in this respect. All the old stock which you do not wish to hold over another year should be sent to market and the young stock culled and all that are not up to standard compared with what the different requirements, should be sent to market, also. Separate the cockerels from the pullets and those that you do not wish to keep for breeding or sale birds, shut up separate, fatten and market. Begin to handle the birds which are expected to make show birds, as it will tame them, and they will make a better appearance when they face the judge.

Whitewashing the Houses.

Lime wash or whitewash is a very essential thing in the poultry yard. It keeps lice and vermin out, makes the houses lighter and is an excellent disinfectant. August is a very good month in which to whitewash. In applying it I use a spray force pump. Before spraying the windows should be taken out as well as all nesting material, and all other movable things, and the cobwebs swept down. The pump is attached to a barrel containing the whitewash, and which is easily moved about. Two men are required to do the work one to pump and the other to handle the spray nozzle.

Take great pains and soak well every crack and crevice. It only requires a short time to go over a good sized house, and the cost is very little. I prepare the whitewash as follows: Slake in boiling water one-half bushel of lime, keeping it just fairly covered with water during the process; add to it a peck of salt dissolved in hot water; three pounds ground boiled rice in water to a thin paste; one-half pound Spanish whiting and a pound of clear glue dissolved in hot water. These ingredients are thoroughly mixed together, strained and applied to the building when as hot as possible.

The glue and rice may be omitted from the mixture, but I find that if they are used the wash will stick better and will not peel off. I also go over my brooders, brood coops, and



colony houses often during the hot weather and by doing so have little or no trouble with lice, besides it keeps the chicks in good health. I also make a whitewash mixture for outside work, applying it to the houses, yards and fences. This gives them a very neat appearance, lasts well and costs very little.

About the New Poultry House.

If you are planning to build a new poultry house now is the time to begin on it, so as to have it finished and well dried out before cold weather sets in. If it is your first house, be careful and see what you build is going to be what you like. The location should be studied and the weather conditions of the locality taken into consideration. If the driving rains come from the southeast, have an end face this quarter, as then only a minimum amount of exposure to the storms will be given. Do not build a fair weather house; it will storm some time and the stock has to be cared for in storm weather as in fair. Build your house as cheaply as possible, yet have it comfortable for the fowls, and don't overlook the importance of having it well ventilated.

The Advertising Campaign.

August is the month to get your name before the people if you have stock for sale, and every farmer should keep purebred poultry so as to have some surplus stock to sell at good prices. Buyers do not buy on the impulse of the moment. This paying money for poultry is a question which the average buyer is a long time studying, and if you wish to share in his or her trade, keep them posted on what you have to sell. Make the advertisement fit the amount of stock you have to sell, but advertise, and do it now if you wish trade later.

Make your advertisement different from the others, have a style about it of your own. People are constantly on the lookout for something new and different. They will see it and appreciate it as quickly in a pleasing, attractive advertisement as elsewhere. Some people have the idea that when they have sent one copy to the editor all they need to do is to wait for the rush of orders. If the orders fail to come it is the fault of the editor and his old paper. As a matter of fact the editor is just as anxious for your advertisement to pay as you are, and he will do his part towards making it pay; but it is up to you to furnish the copy. Postal card buyers are not rare, a postal card should have just the same courteous answer as a letter. The postal card is the busy man's friend, and about every one is busy nowadays, from the millionaire to the farmer and poultry keeper. Of course an enclosed stamp is appreciated, but this is a business proposition, and we must make every opportunity count to make a sale.

KEEPING THE HENS LAYING.

It's about this time in the summer that we frequently hear of yarded hens stopping laying. They laid well in the spring and are fed the same ration now, given the same care, but produce very few eggs. A good many who keep yarded fowls have more or less of such experience, says Southern Fruit Grower. Now, to commence with, for yarded fowls, the ration which gives good results during spring will not answer for mid-summer feeding. During the spring, or for three or four months, hens naturally lay very steadily; this exhausts them more or less, and after this time, unless we make the conditions favorable, they do not lay quite so well. The weather has become hot and sultry now and the flock is not as active as

they were earlier in the season when cooler and they had just been let out from their winter quarters. The fat forming foods that they may have needed at that time are too heating to feed now, and soon cause the hens to become too fat to lay well, and then much of the food that was given early in the spring with good results is now too concentrated. They require green food to dilute this heavy food, and with the limited exercise that yarded fowls get unless some bulky food is given, the hens are sure to get out of condition, and stop laying. But accepting those who make a study of how to get the most eggs throughout the year, comparatively few make much change in the hen's ration from spring till mid-summer. With hens that have free range and can find plenty of green stuff and insects, it is different, but all flocks cannot be allowed such liberty, and especially during summer, when gardens and field crops are ripening, and for these I would suggest having a plot of ground adjoining the poultry yards for the purpose of growing green stuff, the same as a dairy sows a piece of oats or corn close to the cow pasture for summer feeding. On this small piece of ground may be raised one or more kinds of green stuff, such as lettuce sown broadcast, or a few rows of Swiss chard, or a small patch of clover may be fenced off for the hens. If of clover the plot should be of sufficient size that the crop can be removed once in two years by plowing up half of it and planting to vegetables one year and then reseeding. On the part plowed is an excellent place to grow cabbage or other green stuff for winter feeding. Another plan which recently came to my notice, is to use the hen manure for fertilizing the ground for cabbage, then in July sow crimson clover between the rows and early next spring sow common red clover over all the ground. The growth of crimson clover will make plenty of green food for the hens during the late fall, and if it does not winter kill there will be some for them in the early spring, and if there is a fence around the yard so as to stop the snow and keep the ground covered it will not be likely to freeze out. It may be possible in the spring if the flock is not turned into eat it down. And if the crimson clover is kept down by cutting the red clover which is sown in the spring should make sufficient growth so as to pasture the hens late in the summer. In case there are several yards of fowls and plenty of room it is a good plan to have quite a large piece of clover adjoining the yards so the fowls may be turned in alternately. For the poultry man, either on a large or small scale, this matter of having a good supply of green food for both winter and summer feeding is certainly an important one.

EGGS IN AUTUMN.

The only hope of increasing the fresh egg supply in the fall lies in the proper handling of pullets, as hens can not lay at that season. To secure pullets that will lay in the fall, the American breeds should be hatched about March and the Leghorn and other Mediterranean breeds somewhat later, in April or May. The Leghorn pullets begin to lay sooner after hatching than the American breeds.

The question of feeding them comes in. Proper feeding will cause the pullets to lay during the fall and winter, but too heavy feeding or improper feeding will force the growth of the pullets to such an extent that they will begin to lay in August and September, then pass through the molting period in the fall the same as hens and cease to lay until warm weather. This is a difficulty that the poultryman must avoid.

BUTTERMILK AND MOLTING.

Bulletin 21 of the bureau of animal industry on poultry fattening, says: The marked growth of feathers which occurs during a few days of fattening

indicates that buttermilk and forced feeding tend to renew feathers rapidly.

Chickens which do well in fattening are almost invariably covered with pinfeathers, and this is an indication of good results in the feeder. Apparently a large amount of buttermilk in the feed greatly stimulates the growth of feathers, which fact might be noted in connection with the feeding of laying hens during the late summer to promote the rapid molting and the growth of new feathers.

NUMBERS FOR FATTENING.

Concerning the number of fowls to be put in each compartment for fattening, Bulletin 21 of the bureau of animal industry says: From 3 to 12 birds were placed in each compartment of the probable batteries at Stations 2, 3 and 4. Twelve birds were too many, as the birds scratched one another's backs through attempting to feed at the same opening.

The little thornlike spurs on the apple trees are important. The fact has developed that they are a very profitable asset to any tree, for they, and they only, except in the case of a few varieties, are the fruit bearers. When a tree is devoid of these spurs, it must be pruned and nursed in a manner that will bring about their growth. They must be there before the fruit can develop, except in the varieties that bear principally at the tips of last year's growth. In picking, be careful, also when pruning and thinning, lest these unconsciously be broken off. These spurs grow very slowly, possibly only a fourth of an inch per year, and it is necessary to prune the upper-most limbs in such a manner that the sunlight may filter down through the foliage, and make these fruit spurs vigorous, that they may hold and nourish the fruit until it is ripe.

If fruit juice doesn't jell readily add a little lemon juice to it. Too little acid is the cause of the trouble.

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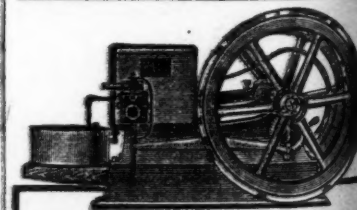
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CREAM of the DAIRY NEWS

PROPER CARE OF THE CALF.

It makes good calves to let them run with their dams, but it doesn't make good cows. They get ideas in regard to ownership; want to keep by the calves all their lives, suckle them, keep near them and usually you spoil the cow and calf both in disposition. Besides, you cannot afford to feed that calf whole milk at \$600 per ton for butter contained therein when, oil meal can be had at \$40.

If that calf has been bred right and fed right before birth, it will be right at 24 hours to leave its dam and go into a box stall for itself. Take him away before he gets his head full of fool notions about reaching up in the air for grub and it will be a lot easier to teach him that the natural way for a calf to eat is out of a bucket. Don't monkey around with rubber teats and contraptions that get foul and make him sick; teach him to go after it himself. Use a clean bucket every time.

Feed him three times a day for 10 days, with whole, fresh, pure milk; give him plenty but not too much. He'll not starve on a half gallon at a feed; maybe he will be able to stow away a gallon; it all depends on the individual.

The main thing is to get him started right and keep him going. If he starts to scour, stop right there. Some one has blundered, and it wasn't the calf. Shut off all feed and let the digestive apparatus rest. You've been in too big a hurry; either you have fed too much or it was cold or dirty.

If he is scouring badly let him rest 24 hours, then give him not to exceed a half gallon of fresh milk from his own dam and nothing else. Don't

dope him; give him a chance. You don't feed the baby on steak and onions the first week; the calf is still a baby; act accordingly. Have you been giving him a little handful of corn meal with his milk? Have you been letting the separated milk get cold before you fed him? Or, is it just plain laziness and dirt? Anyway it can't be helped now. We must get him back in condition as quickly as possible. The quickest way out is to just stop all feeding and wait for old mother nature to clean him out. Wait until he gets good and hungry; then start at the beginning and stay right. Any one can be excused for making a mistake, but the fellow who makes the same mistake the second time is a—well, you know what he is.

As soon as the calf is able to handle all the milk he ought to have and wants more, he needs more protein. Take a teaspoonful of oil meal (never under any conditions cottonseed or corn meal), put it into a bucket, pour a quart of boiling water over it, then pour his milk on top of this top, and gradually increase the amount of oil meal, until he gets big enough to take an interest in a mixed grain ration poured in his trough.

If your separator smells like the back yard of a glue shop, your calves are likely to scour. Clean it up, and keep the buckets clean.

Some men who would kick their heads over cold coffee for breakfast, will go out after breakfast and give a baby calf a couple of gallons of cold milk for its breakfast and then wonder why the calf isn't doing well. Calves kept in a lot by themselves will do better than if pastured with other cattle, horses or sheep. Whenever one gets ideas about bossing the bunch, it's good discipline to turn that calf out with the mother cows; they'll take the nonsense out of it in short order.

Three pieces of board, a few nails and one bolt will make a stanchion for one calf in 10 minutes' time and it pays to have it; it is easier to feed the calves, saves time, keeps them from sucking each other and robbing each other of feed.

L. P. Bailey says flax seed beats oil meal. I've never tried flax seed, but shall with the next calf. If there is anything better I want it. We have had two cases of scours in the last seven years, one caused by corn meal and one by cold milk; but in all our



experience with cattle we have never lost a calf.

We buy a number of calves each year and feed them awhile; if they show up right, we turn them with the herd; if they don't, some one always wants them at a profit to us. We have paid from \$1 up to \$15 for grade calves from neighboring farmers and dairymen and never lost a cent yet in young stuff. I wish we could say the same thing about cows.

A good calf is always worth the money; if not at the time, within a year afterward. When you go out to buy a calf, take your imagination along; see that calf as it will be when two years old. You are not running half the risk with calves you are with old stuff with habits formed and dispositions beyond your control.

Dan Dimmick who owns a bunch of world's record cows is the most liberal feeder I ever saw. He builds frames up to 1,400 pounds in Holsteins. He lets them eat all the grain they want and says it pays; big calves are what he wants. Big calves will grow big cows, cows with the frame and constitution to handle a lot of feed and convert it into milk.—Successful Farming.

DAIRY NOTES.

Editor Rural World—Can some one in the dairy notes, please inform me what to do for a young 4-year-old, red Jersey cow that bloats? Our local veterinary surgeon tried to cure her of bloating but he could not cure her. He said she might have eaten rocks. A year ago she brought a heifer calf which I sold while young for \$10. She gives a little milk. She eats heartily and seems well, only she looks bad, bloating so much, and mostly on the left side. She has bloated more or less all her life. I have another good cow, so I do not need her, but could I sell her for beef—or whatever can I do with her? Two cars of fat hogs were shipped from here last week.

N. B. RICHMOND.

PUMPKINS FOR COWS.

Professor Hills of the Vermont station found that 2½ tons of pumpkins, including seeds, are equal to a ton of corn silage for dairy cows. The old belief that pumpkins diminish the flow of milk when fed to cows is erroneous and has been exploded. At least there is no foundation for such a theory.

The value of these succulent foods for feeding cows with other feeds rich in dry matter and feeding nutrients is such that they should be utilized whenever possible. Many more cows go dry from not having succulent food than are turned dry by consuming the seeds of pumpkins and melons.

GRASS AND FEEDS.

The quality of silage and cottonseed meal that should be fed when the cows are on grass depends upon the character of the grass, whether it supplies considerable feed or not, and the amount of milk the animal is giving. With good pasture little grain is required to produce a maximum flow of milk, and cows giving a reasonable amount would not need as much, if any, grain. As to silage, the cow may be fed with all she will consume of it.

GRAIN AND PASTURAGE.

The money-making dairyman with experience feeds some grain while the cows are on pasture. While in the lush pasture the grain is reduced, and as the grass gets older, harder and more unpalatable, the concentrated

ration is increased. The dairy cow is quite comparable with the steam engine, and you get the best and most profitable results only if you keep up a steady pressure of steam, reserve energy and tissue. The concentrate ration does this.

ROPY MILK.

Ropy or slimy milk is caused by fermentation which acts upon the casein of the milk, giving it the slimy appearance. The feed is not necessarily the cause of this condition. Where wet brewery grains are fed and the premises are not carefully kept, there might be some infection from this source.

About the only way to prevent this condition is to scrub and scald every part of the milk room, even the walls and ceilings, if necessary, thoroughly disinfecting every place where bacteria that cause this condition might grow or multiply. The germs are not hard to destroy, but sometimes it is difficult to reach every place where they may be found. A thorough cleaning up and careful watching ought to overcome the difficulty.

SANITARY QUARTERS.

Portable houses largely solve the problem of keeping the sow and pigs in sanitary quarters. Where several sows and their litters are continuous-

ly housed in one building and fed in and around the house all the time, the surroundings become more or less filthy and unsanitary at certain seasons of the year. By using portable houses they can be removed occasionally on to a fresh piece of ground, and unsanitary conditions will be avoided.

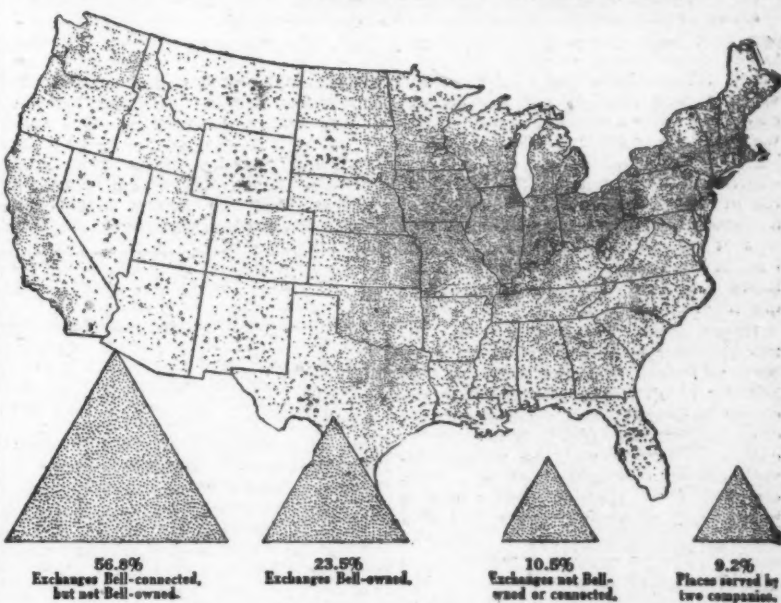
Many precious stones show a remarkable change of color in the presence of radium. In late German experiments a colorless diamond from Borneo became pale yellow after an exposure of eight days to impure radium bromide, deeper yellow in eight days more, and was not wholly restored to its original colorlessness by heating to redness. The light blue of a sapphire turned to green in two hours, then to yellow, reddish yellow, and, after 14 days, to yellowish brown. The color disappeared on heating, a light yellow invariably reappearing, however, when the stone became cold. The rays did not affect the color of the amethyst, ruby, blue topaz or chrysoberyl; but a tourmaline with a green end became green at any other point on which the rays acted.

Have the weeds been mowed along the roads and in out-of-the-way places? If they are kept out of the way a few years grass will take their place. It is not only useful but looks better.

CORN

HARVESTER with binder attachment, cuts and throws in piles on harvester or winnow. Man and horse cut and shock equal to a corn binder. Sold in every state. Price only \$29.00 with fodder binder. J. D. Borne, Haskell, Colo., writes: "Your corn harvester is all you claim for it; cut, tied and shocked 65 acres mile, cane and corn last year." Testimonials and catalog free, showing pictures of harvester. Address PROCESS MFG. CO., Salina, Kans.

What the Telephone Map Shows



EVERY dot on the map marks a town where there is a telephone exchange, the same sized dot being used for a large city as for a small village. Some of these exchanges are owned by the Associated Bell companies and some by independent companies. Where joined together in one system they meet the needs of each community and, with their suburban lines, reach 70,000 places and over 8,000,000 subscribers.

The pyramids show that only a minority of the exchanges are Bell-owned, and that the greater majority of the exchanges are owned by independent companies and connected with the Bell System.

At comparatively few points are there two telephone companies, and there are comparatively few exchanges, chiefly rural, which do not have outside connections.

The recent agreement between the Attorney General of the United States and the Bell System will facilitate connections between all telephone subscribers regardless of who owns the exchanges.

Over 8,000 different telephone companies have already connected their exchanges to provide universal service for the whole country.



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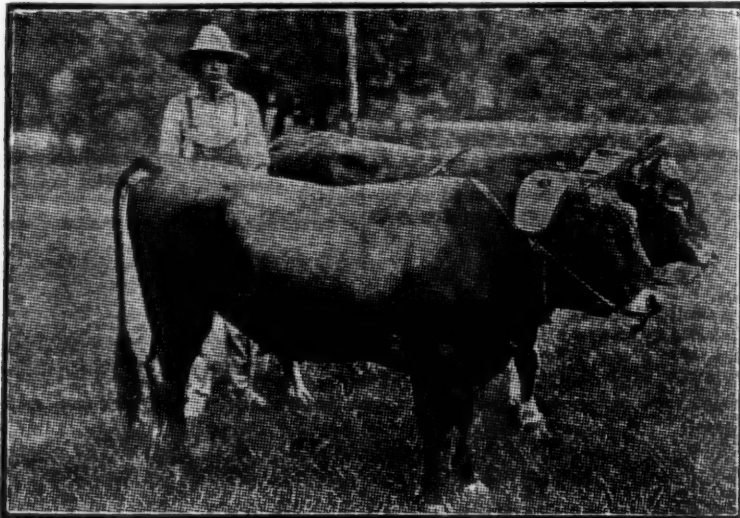
One System

Universal Service

Cattle

MAKING THE FARM DRONES EARN THEIR LIVING. A Money-Saving Proposition.

"A perplexing question which always confronts the farmer and breeder is, how shall the bulls and stallions be handled to prevent them from becoming nuisances? It is a well-known fact that a full grown bull is a white elephant upon most farms, regardless of either breeding or value; that his care and control is the bane of the farmer's life; that he is usually enclosed in a strong pen or hitched with a chain to a post, where he gets but little exercise, with the result that the poor brute becomes nervous, vicious, and dangerous. He suffers in loss of vitality, deteriorates in prepotency; becomes self burdened with useless fat, and is a drone in every sense of



THREE DRONES PUT TO USEFUL LABOR.

the word. What is true of the bulls is equally true regarding stallions, except that there are fewer of them; but whatever their color they also become white elephants, so far as care and control is concerned, in the hands of the ordinary farmer. It is to suggest a remedy for this state of things that this is written, believing that it will benefit the poor animals, and at the same time relieve farmers and breeders from useless burdens.

Every normal animal requires plenty of regular exercise in order that the bodily functions may be kept in healthy condition, and when such exercise is denied him, deterioration at once begins. The digestive organs become abnormal, and the animal develops the various bad habits and vicious tendencies which render him a permanent nuisance, nevertheless a necessary evil upon the farm. Any stallion having a temperament fit to qualify him as an effective sire, can readily be trained to do any kind of useful work, either singly or as half of a good team, and when so trained should be kept regularly at work, in breeding season and out. Such a stallion will seldom give any trouble whatever if proper care is used, and he can be made to earn his oats, at least. Instead of the vicious brute, kicking and screaming in his pen, he becomes a useful, gentle, faithful horse; sure in service, a prepotent sire, and transmitting vigor and style to his offspring. Exactly the same results will follow the working of bulls upon the farm, and the change will be found most gratifying to the bull's owner.

At the farm conducted by the writer in connection with a New York state institution are kept four bulls and two stallions; the bulls being purebreds, representing the principal dairy types. The stallions are an imported Percheron and a registered trotter. In temperament they are probably not materially different from other bulls and stallions of like breeds, yet under proper treatment they are all absolutely gentle, reliable and very serviceable. They work hard every working day. The bulls are just as gentle as the cows. The use of a bull staff is not known on the farm—the word of command and the crack of the whip brings them here or sends them yonder, and there is no farm work which

they cannot do quite as well as any other animal, and they do it every day. The thing is so simple, the wonder is that such animals have not always been useful upon the farms.

The animals shown in the illustration are respectively a 4-year-old Percheron stallion, and a registered Jersey and Guernsey bull, each 3 years old and worked daily by the young men driving, who are students in the agricultural school, both still in their teens, and one of them but 17 years old. They work their charges singly, in pairs, or combine their forces when necessary, as shown. The bulls work equally well in the ordinary ox yoke or in regular horse collar and full harness, and none of these animals entails one cent of extra expense, except that the bulls require to be shod when worked regularly to protect the feet from injury. The vicious bull or stallion is quite unknown on this farm. Every animal is made to earn his living, no matter how pure his blood, or



THE "HEAD OF THE HERD" EARNING HIS FEED.

grand his pedigree; they tolerate no drones. It may be suggested that full-grown bulls and stallions which were never trained to work would be a difficult and dangerous proposition to undertake. It may be replied in answer to that, that the Jersey bull shown in the illustration was purchased as a



CARE OF SHEEP IN HOT WEATHER

Summer is the time when the sheep are most commonly neglected. As soon as they have been shorn in the spring it is very often the practice to turn them all together in some large field where there is running water and allow them to shift for themselves. If at any season of the year, sheep are prepared to care for themselves it is during the summer and some flocks seem to do fairly well with this kind of treatment but a little extra care and attention will be well repaid in comfort to the sheep and in return to the shepherd, says Indiana Farmer.

Separating the ewes with lambs from the rest of the flock and also keeping the ram in a separate pen are items which are well to consider whenever

possible. When the lambs and their dams are placed on separate pasture or forage they seem to do better than when allowed to run with the yearlings and dry ewes. All ewes which have not produced lambs should have been disposed of by this time but if there are any especially valuable ewes or ewes having lost their lambs which you desire to keep over until next season it is best to allow them the run of the pasture with the yearlings.

The object in keeping the ram separate from the rest of the sheep is to keep him from annoying the ewes and to guard against any dry ewes breeding during the summer and having lambs in off season. He will usually be contented in a pen by himself but if he frets about his confinement it may be well to give him two or three other sheep to keep him company.

It is not a good plan to pasture horses or other live stock in the same pens as the sheep are apt to suffer from any over exuberance of spirits which the other stock may feel and it has often been the cause that the other stock have trampled sheep to death from pure maliciousness.

Sheep also like change of pasture or forage and it is better to keep them on small areas and change them frequently than to give them the freedom of a large range for the entire season. It is better also to pasture them over ground which has been cultivated the season previous as this does away greatly with the danger of infection from stomach worms or other parasites. This is especially important in the case of the lambs and they should never be turned onto ground which has not been cultivated since pasturing by infected animals. Wherever possible they should be allowed to graze ahead of the ewes. One way in which this may be accomplished is by the use of a temporary fence having a creep in it. This will allow the small lambs to get onto the clean forage and after they have eaten over the best of it the fence may be removed and the ewes turned in.

During the hot dry weather it is also a good practice to coat the nostrils of the sheep with tar to keep away flies. Pine tar is used for this purpose and may be directly applied with a brush or rag or put onto a self-smearer. This is made by placing salt between two boards which slant toward each other



at the back and have a back board. These boards are well smeared with the tar and when the sheep go after the salt they keep their nostrils well covered.

Salt and sulphur may be given at this season as there is little danger of the sheep taking cold during the warm weather. The salt is best in the rather coarse granular form as the sheep can get it more readily than when it is given in large rocks. The sulphur is mixed in until the whole mass has a slightly yellowish tinge and may be fed as desired. It is best, however, to keep the salt before the sheep as this helps to keep their appetites satisfied and there is less danger of their eating too much.

Shade and water are other requisites which are very necessary to the welfare of the sheep. Natural shade and a clean running brook or spring are the best means of furnishing these two important essentials but where there is no grove of trees or running water convenient shade may

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be furnished by a cheaply constructed shed and water by watering tanks which are kept filled with fresh water free from all slime and filth. The shades, if obtained by building a shed should be so faced as to give the sheep the greatest protection from the sun during the heat of the day. This is the time when they like to rest as they graze mostly in the morning and evening.

No grain is necessary where the sheep have plenty of pasture and forage unless it is desired to keep the lambs in bare lots to guard against infection by worms. Here the ewes are allowed the run of the grazing ground and come in two or three times a day to nurse the lambs up to weaning time. The lambs are also fed a good grain ration to make their separation from the ewes easier and are turned out in the fall onto fresh clean forage crops which have been grown on previously turned ground during the summer. The best plan, especially where land is scarce or high in price, is to plan and keep up a system of forage crops throughout the season to furnish the sheep with plenty of grazing. This is a good system to follow and by a rotation of crops the land is kept in good physical health and fertility and the maximum returns are had from a limited acreage. Plenty of good shade, water and forage with an occasional change and attention to parasitic enemies are all that the sheep will need during the hot weather to bring them up in prime condition.

BREEDING POINTERS.

A stallion is valuable in proportion to the quantity of good produce he gets.

There is no sense trying to breed valuable stock if the sire is selected at haphazard.

The safest horses to breed are those that are the scarcest in the market and bring a good round price.

PREVENT SCRATCHES.

The best remedy for scratches is prevention. Keep the feet and legs of the horse clean. When they come in at night, wash them clean and rub them dry. The latter is as important as washing, as allowing them to stand with their feet and legs wet is injurious. A little care as regards cleanliness will prevent much trouble and loss.

A STUMBLING HORSE.

If a horse stumbles, give him his food on the floor instead of in the manger. The position necessarily taken in feeding strengthens the muscles of the knees and so removes the cause of the stumbling. A horse just brought from pasture does not stumble.

Weekly Market Report

Cattle Firm; Hogs Off; Supply Light and Quality is Common—Hogs Are still Declining.

CATTLE—The combined estimate called for 2,500 head of which around 1,500 were natives. The showing ran largely to she stuff, steers being scarce and confined to odds and ends, no full loads being available. Quality was also lacking, common to medium kinds predominating. There was hardly enough in the offering to give the market a test, and prices were nominally steady.

Some heifers of fairly good quality, but nothing strictly choice, odds and ends mostly, and a good showing of medium to fair killing kinds were on sale. There was a good demand for the offering, considering it was Friday, and they got action fairly early. Market was steady, and lacked the dullness that is characteristic of a week-end session. There was a good supply of cows, and they found a good inquiry. Market was fairly active and prices on the bulk unchanged. Canners and cutters also moved in a steady range. Bulls reflected no change. Just a small supply of vealers was received and quality poor. They found a fair inquiry, and the market was fully steady, a couple of head of \$10.50 being top. Trade in stockers and feeders was on a quiet basis, and a small supply.

The quarantine estimate called for 35 cars. However, only about half of the estimate was on sale, as the run included some 18 cars that were consigned direct to packers. Oklahoma and canner territory about divided honors in the contributing line. There was only a fair demand for the steers, the inquiry being about of the usual volume for this period of the week. Order buyers did not want many steers, and offered very little support. However, the market was about steady, and movement fairly good; a seasonable clearance was effected. The trade in canners and good she stuff was unchanged. Demand was good, and the market was on a steady basis. Yearlings again came in for a hammering, and sold at 10@15c lower.

HOGS—Another moderate supply, but did not serve to check the decline, and prices opened another dime lower and the lowest of the week, while toward the close were 15c lower than the best time on Thursday. It was a draggy trade and yet closed with the hogs well cleaned up, there being only some pigs and lights left that were not very good.

Several loads at \$9.35 represented the top of the market, while the bulk of the hogs went at \$9@9.25. The high day of the week was on Tuesday, when the top was up to \$9.65 and the bulk of the desirable hogs went at \$9.30@9.55.

What hogs attracted the attention of the order buyers and the city butchers found sale at \$9.25 and higher, while the mixed and plain grades went to the packers largely at \$9@9.20, with some of the poorest kinds selling under \$9, while rough packers went at \$8.25@8.50. Packers purchased most of their hogs at \$9.05@9.15, getting some pretty good kinds at \$9.10@9.15.

The best of the lights weighing less than 165 pounds went at \$8.90@9.20, while the fair grades sold at \$8.50@8.90, best pigs weighing under 125 pounds \$8@8.30, fair offerings \$7.25@7.85 and the common kinds \$6@7, providing some one would make a bid. Buyers did not refuse any sort of a bid for the poorer grades of pigs and lights, as they were anxious to make a clearance.

SHEEP—Only a small number of sheep and lambs was received, so that the trade was on a quiet basis, with prices steady. Lambs are now on a 25c higher basis the close of last week and ready sale, as the supply all week has been limited and buyers are getting to the point where they need more lambs. Sheep are selling the same as all week and the same as last week.

The best lambs offered yesterday were from Bollinger county, Mo., and went at \$7.75, while other good lambs sold at \$7.25@7.60 and the culls and poor grades in general went at \$5.50@

7.00. Not many culls were offered, as the buyers did not sort their purchases very deep.

Practically all of the mutton sheep, and, for that matter, all of last week, went at \$5, while the best stockers and choppers sold at \$3.50@4.25, and the plain stockers at \$2.50@3.35. Breeding ewes have been quiet from the fact that but few were offered. They went at \$5.25@5.75. Bucks are still selling largely at \$3.75.

HORSES—The Eastern trade in general was on a slightly better standard this week all around, and shippers of this class of material seemed better pleased with the week's business. They were able to get better prices for all their horses that were on the good order, due simply to the stronger demand placed for this class of material. The Southern market was not improved this week and about the usual week's trade took its stand. Buyers were scarce and the number of Southern animals finding an outlet was relatively small.

MULES—The outlet was small and only a few of the extra good types of miners and big mules were lucky enough to go through. There was a stronger demand for the big mules of quality this week, but these kinds were scarce, and for this reason only a fair trade was staged.

VALUE OF EXPOSITION TO AGRICULTURE.

What the Panama-Pacific Will Do For the Farmers of the World.

By Chas. W. Stevenson.

The value of an International and Universal Exposition to the peoples of the earth is both unmeasurable and immeasurable; the former because it cannot be computed in dollars, the latter because its influence never ends, widening as it goes.

Who, indeed, can estimate the value of an idea? Who can measure the suggestive power of manufactured products when placed in juxtaposition? Who dare even imagine to what wonderful creations, for the good of man, invention will be quickened, as want and need are suggested by the multi-form array of exhibits? And can the science of today applied to agriculture, to primal production, even faintly conjecture, to what saving uses, to what variety of products, to what abundance of foods, the acres of the earth will yet be devoted because of tendencies awakened by the educative power of the Universal Exposition to be held in San Francisco in 1915?

And yet there are methods by which we may approximate the worth of this coming exposition. If, for example, the natural resources to be shown, the experimental processes to be given, the farm products from over the whole earth to be exhibited, the illustrative and elucidative lectures to be pronounced, and the comparisons and judgments of experts on all these be made, by reason of their influence on the growth of products, should result in increasing the annual crop production of the United States, alone, 1 per cent, the Panama-Pacific International Exposition would add to the annual agricultural output the sum of \$84,983,110. If it increased the manufacturing product in the same ratio it would add annually to the wealth of the country \$206,720,518.70. Or, still further, if its effect be to increase the total wealth of the country by the same ratio, it would add the enormous amount of \$1,071,042,119.17 to the present national wealth of the United States. Surely it is worth while to hold these expositions every ten years!

Take another view of exposition value. In the Department of Agriculture at the Panama-Pacific all the modern methods of intensive farming will be shown, the treatment of soils and the uses of machinery. Suppose as a result of the germinal ideas contained therein, absorbed and applied, the average acre production in the United States should be increased one bushel, this would add, on a 1913 basis, 49,601,000 bushels of wheat, valued at \$38,192,770 to the annual productive wealth of the country. On the same basis an increase of one bushel per acre would add 106,884,000 bushels of corn annually with a farm price value of \$75,566,988. Take cotton as an example. The United States crop pro-

duction 1912-13 was 7,064,500,000 pounds. Suppose as a result of exhibits and considerations at the exposition the quality of this cotton be increased so that it would sell in the markets of the world for 1 cent per pound more, this would add \$70,645,000 to the annual wealth production of the country.

Let us take still another view of the importance of the Panama-Pacific International Exposition to the agriculture of the world. Taking only the countries that have accepted the invitation to participate, and including

(Continued on Page 12.)



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L. A. Henry, The Bronx, New York, writes: "Your solar eyepiece is a great thing. I witnessed the eclipse at the Austrian gym when the sun was almost 80 per cent concealed."

COULD SEE SUN SPOTS
Rutland, Vt., Feb. 14, 1910.—Telescope arrived O. K. I have seen the spots on the sun for the first time in my life.—Dan C. Gifford.

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Horticulture

QUESTIONS ANSWERED.

By Jacob Faith.

(Written for this paper.)

Strawberries, late culture—I use in one hand a short-handled hoe, blade 1½ inches wide. Thus I can hoe out weeds and pull weeds with the other hand. After August I let weeds grow. They are the lazy man's mulch.

Best time to mulch is after big frost or freeze. For large field, after ground freezes to hold up wagon.

Best mulching material is half rotten leaves. New leaves are liable to blow off. Half rotten straw is good. New straw is liable to contain seeds, such as cheat, wheat and other seeds. Straw manure is good. The winter rains will carry the strength into the ground during the winter and spring and leave the straw on top to keep the berries clean.

I have grown strawberries for over 50 years and have never failed to raise from 50 to 400 24-quart crates per acre.

Summer Pruning of Apple Trees—My experience is that trees that make big growth and don't develop fruit buds should be pruned in the months of June and July. This checks the growth and causes the forming and developing of fruit buds for the next year's crop.

Renovate Orchards—I once took an orchard 12 years old that had been badly neglected and had quit bearing. I pruned it after midwinter, scraped off the old, rough bark, washed the trees with lime wash to which I added one quart of crude carbolic acid and four pints of sulphur to each four gallons; dug ground from around the trees, killed the borers before washing trees. This orchard put on a new growth and bore well—a wonder to all who saw it.

Style of Ladder I Use—I make my ladders: Nail two planks (as long as I want the ladder) together. I use planks about one inch thick by four inches wide. These I place about two inches apart at one end and three feet at the other. I then nail on strips for steps. The two-inch end can be pushed into the tops of the trees and the wide end rests on the ground.

Jonathan apples are most profitable for me. On lime stone soil Grimes' Golden are most profitable. The latter should be budded on one-year-old stock; also a few other varieties that are short lived should be budded on their own stock.

FRUIT NOTES.

Written for the Rural World by Jacob Faith.

Editor Rural World: Wood ashes are valuable as a fertilizer to scatter around the trees. This can be done at any time. This is also true of other waste matter from the house.

As land gets higher in price we should study and figure how to keep it busy—what to plant and how to cultivate to get the best results. We should study the nature of our soil. Sandy land is best for fruit while rich, heavy land is best for most grains.

Don't forget to sow rye. True it is getting late to sow for early fall pasture but I have sowed it in November and it paid well for spring pasture for poultry and other stock. Plowed under in May and planted to corn it enriches the land and makes better corn than some planted three weeks earlier.

I have grown two crops in one year successfully and the land benefited by the two crops in one year.

As soon as the rye was harvested I planted it to cowpeas. Then after the cowpeas were harvested the ground was in good fix to sow rye and harrow in or drill in, in fact this way I raised four crops in two years.

As we drive along the roads we see so much neglect where a little labor and enterprise would add much to many homes, profitable and artistic, by planting fruit for home use, to eat fresh from vines, to can, and the many ways fruit can be kept all year. Less than half an acre of strawberries, raspberries and black-

berries will supply a big family. A few cents will plant a few cherry, peach, and other fruit trees. But sad is the fact that money is sent off for fruit when hundreds of dollars should come here for fruit.

PICKING THE APPLE CROP.

No set rule can be given for the proper time to pick apples as that will vary with season, variety, and distance fruit is to be shipped. As a rule, we gauge the time to pick red apples by their surface color, and yellow apples by the color of the seeds. Many growers in this state allowed their Jonathans to hang on the tree too long last season. As a result, many of them broke down before shipping and many became soft and rotted at the core before they reached their destination. Every grower should study his fruit carefully and learn the proper time for picking his fruit, and when that time comes have plenty of help to pick and care for the fruit. Some times two pickings will be necessary. Every day the fruit is left on the tree after time for picking, it approaches just so much nearer its final maturity and deteriorates in its keeping qualities.

Then, again, when a tree is relieved of part of its load it gives the remaining fruit a better chance to become large and well colored.

There are many receptacles on the market for picking fruit, but I will not discuss them in this article. A careless picker may have the best picking receptacle on the market and it will not prevent him from bruising the fruit. To get the best results, we must handle the apples as though they were eggs, and use every precaution not to bruise and more especially not to cut the skin of the apple. The apple should be picked by a twist of the wrist, giving either a slight upward or downward motion at the same time. If picked this way, few or no stems will be pulled out. If the apple does not come readily when this is practiced, it is a good indication that the fruit is not ready to be picked.

When the time comes to harvest your fruit do not try to economize on help but put a full crew of experienced men in the field and pick your fruit at the proper time. There is no economy in drawing out the time of picking. If we will pick our fruit at the proper time, handle it carefully, we will have less culls and more of our fruit will reach the market in first class condition.—W. C. Edmundson, Asst. Horticulturist, Idaho Experiment Station.

DYEING.

Home dyeing in silk or cotton is a simple process. Linen and wool are difficult to get a good fast color in, and need expert knowledge to handle well.

The best dye to use is aniline dyes fast Dialine, red, yellow and blue. From these primary colors any shade may be made, and colors may be matched perfectly. The dye may be ordered through any drug store, in quarter pound cans, and should cost about a dollar for the three.

CO-OPERATE IN FILLING SILO.

Silo-filling is one of the things in which Clemson College strongly urges farmers to co-operate. Large cutters are expensive and in some cases it is well for two or three farmers to own a cutter together. The more important point in filling the silo economically is to have enough men and teams at hand to keep the machinery going all the time. Thus it can be seen that by helping each other in silo-filling, the total expenses to each farmer will be smaller than if he "goes it alone."

Visiting Poland-China Hogs.

The name of J. P. Vissering is known all over the central west as the breeder of excellent Poland-Chinas, for he has shown and shipped breeding stock to all the leading hog raising states in the Union. He has taken great pains to produce hogs of unusual weight.

This year's crop of spring pigs is unequalled for bone and length. He also offers gilts bred for fall farrow and a few fall boars. His prices are as low or lower than those of other breeders for the same quality.

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The Pig Pen

PROFIT FROM HOGS FOLLOWING CATTLE.

A careful accounting system applied to 24 Iowa farms managed by men known to be careful and experienced feeders of cattle show conclusively that the practice of following cattle with hogs is profitable, except possibly when young cattle in large numbers are fed on ground corn and the cost of grounding is very low. The best authorities believe that with the present narrow margin on fat cattle it is inadvisable to feed without hogs.

On the 24 Iowa farms in question, during the feeding year beginning in the fall of 1909, the average profit on 961 cattle fed in bunches was \$2.05 per head, not counting the profits on the hogs following them. The prices received for the cattle were very satisfactory. The 1504 hogs following these steers, and which were given extra grain, were sold in the spring of 1910 with a profit of \$6.67 per hog, which, if credited to the steers, gave a profit of \$12.49 per steer. In the following feeding year, 1910-11, prices were unsatisfactory and this caused a loss of 78 cents per head on 1138 cattle fed on 28 farms. The 1646 hogs following these steers, however, returned an average profit of \$3.33, and when this profit on the hogs was credited to the steers there was a net profit of \$4.04 per steer.

From this it appears that when the steers sell for enough to break even, or if they show a slight loss, the hogs that follow will ordinarily make sufficient gains from the wasted corn to make the feeding operations profitable. Not only is steer feeding more profitable when hogs are used, but the hogs usually prove more remunerative than if fed alone, because of the large amount of feed they secure from the droppings.

The number of hogs to follow a steer will depend on the method of feeding. Some farmers feed the steers more corn than they will eat and run extra hogs, figuring on the hogs getting the waste. While this may be a good policy when corn is cheap, it is doubtful if it should be practiced with high-priced grain. It is usually best to figure on about one shoit per steer when shelled corn is fed and two when ear corn is fed. In case the corn is ground or soaked, or silage is used, the number of hogs would be less. The aim should be to run enough hogs to clean up all the waste corn.

The daily gains that the hogs make will depend materially on the condition of the feed yard. They will also be affected by the quantity of grain given and the form in which it is fed. In general, it is probable that when a steer is fed one-third of a bushel of shelled corn a day, approximately three-fourths of a pound of pork will be obtained. When ear corn is fed the gains will be greater. On the other hand, if corn meal or corn-and-cob meal is fed the amount of pork produced is very small, as the grain is much better utilized by cattle. In fact, experience and experimental evidence show that when corn is most efficient for steers it is least so for hogs, and vice versa.

The gain will be greater if the steers are fed some leguminous hay or some concentrate high in protein, such as oil cake. Nearly all farmers give the hogs corn in addition to that secured from the droppings. Corn for the hogs should always be fed away from the cattle and should usually be given first, so that the steers may not be annoyed. The hogs should also be provided with separate watering places and separate places to lie down.

The paving of feed lots is particularly important when hogs are following cattle. It has been definitely shown that hogs following steers on paved lots make nearly 1 pound more of pork per bushel of corn fed to steers than do those in ordinary mud lots. With pork at 6 cents a pound, this item will amount to about \$1.50 per steer. Moreover, with the unpaved lot it frequently happens that a period of warm weather occurs during the winter and the lots become very muddy, making it necessary to ship cattle before they are ready. This sometimes causes a

congestion of the market, with a consequent drop in prices. The feeder who is forced to ship because of muddy lots may lose more in one year than the cost of paving. Not only will the cattle make better gains, but animals that are covered with manure and mud are usually discriminated against to the extent of 10 to 15 and sometimes 25 cents per hundredweight. If the manure is dropped in open yards and exposed to the weather much plant food is lost. On the other hand, with that dropped on paved floors and in sheds, the losses may not be so great.

These results are described in Farmers' Bulletin 538, "Economic Cattle Feeding in the Corn Belt."

CHANGING RATIONS.

A western writer says that, when a pig is fed on a certain ration for a considerable time it will digest the ration more thoroughly after a few weeks than at first, and that consequently a ration to produce the best results should be fed for a long enough time for a pig to become used to it.

Do not change from a ration, he says, that is high in protein to one that is low in protein in less than four weeks, unless you wish to bring on a loss of vitality. Change rations gradually, the more gradually the better, and in such a manner that the pig will at all times eat the required amount with a relish.

The Shepherd

LATE SOWING OF WINTER WHEAT TO COMBAT HESSIAN FLY.

The seeding of winter wheat should be delayed as much as possible to combat the Hessian fly, whenever this pest is present. Throughout the Eastern United States, where winter wheat is generally grown, this fly sometimes causes damage amounting to over a million dollars in one year. Present indications are that the damage done by the pest this year will be considerable. Cooperative late-sowing by all the wheat growers in the community, accompanied by systematic destruction of stubble and other breeding places for the fly, seems to be the best means to reduce its devastation.

Wheat should, however, be sown early enough to allow the plants to become well established before winter sets in, yet not so early as to allow them to become jointed. If the first frost is unusually delayed there is still danger of injury from the fly, for otherwise his losses may be greater from the failure of young, poorly-rooted plants to survive the winter.

The best time for sowing winter wheat is about the first week in September in the latitude of northern Ohio. In the latitude of southern Ohio the last week of September is best. Proceeding still farther south the best date is still later, being the middle of October for central Tennessee and central Oklahoma, and about the first of November for northern Georgia. In such districts as the Piedmont section of Virginia allowance must be made for elevation. In the northern part of this State the middle of September seems the best date for sowing, while in the southern part, the last week in September is preferable.

The general rule for seeding is that there should be a difference of one day for each 10 miles of difference in latitude, and seeding should be approximately one day earlier for each hundred feet of increase in elevation. There is usually, however, a period of several weeks in all the winter-wheat area where sowing may take place with about equal results. This period is longer as one proceeds to the southward.

Rate of Seeding.

The quantity of seed that should be sown under ordinary conditions in the humid winter-wheat areas is 6 pecks per acre. This may be varied according to the size of kernel of the variety used, the condition of the seed bed, the fertility and character of the soil, and the date of seeding. When the grains are small, the seed bed in good condition, the soil rich, warm, and well drained, and the seeding early,

5 or even 4 pecks per acre are often sufficient. Where opposite conditions exist, 7, 8, or even 10 pecks may give more profitable results. It is advisable to adhere to these rules with all varieties, regardless of any claims of exceptional tillering ability that may be made.

Other details of a general character regarding "The Culture of Winter Wheat in the Eastern United States" are given in a Bulletin of the department bearing that title (No. 596). It can be had free by wheat growers on application to the department at Washington, D. C.

PROVIDE SUCCELCENCY.

Some measure should be taken, as soon as the flock is permanently removed from pasture, to substitute some form of succulency to take the place of that provided in the pasture. Ordinarily dry roughages are deficient in succulent matter and can not be depended upon to take the place of green forage. So long as the ewes can have access to a pasture, even though it may be late in the fall, they will secure enough succulent food to carry them along, but when this fails, some other provision must be made.

Ensilage, of course, is good and will answer all purposes. Roots are unequalled for supplying succulency in the ration if plenty are in store. Potatoes and cabbage may be fed with good results. With the wide resource of supply no flock owner should neglect to feed plenty of this kind of food to his ewes after the mating season.

FUR FARMING WITH SHEEP.

A cablegram from Dr. R. K. Nabours of the Kansas State Agricultural college, dated August 25, says that he has arrived safe in Moscow, Russia, and that he has saved all his pictures and data.

Doctor Nabours, who is the exper-

imental breeder at the agricultural college, left Kansas May 15 and had planned to return September 15. He was sent by the college into the heart of central Asia, accompanied by a guard of Russian Cossacks, to study fur farming in the hope of introducing a new industry to the United States, fur farming with sheep by crossing the Karakule strains of Asia on native longwool breeds. He has during the summer been making a study of Karakule sheep and the production of Persian lamb, astrakhan and krimmer fur.

The doctor had planned to visit the principal animal breeding stations of Europe on his return trip. The situation in Europe has interfered with some of his plans, but this cablegram telling that he is safe with the product of his investigations, has relieved the anxiety that his friends have been feeling.

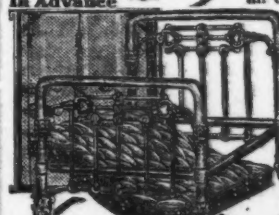
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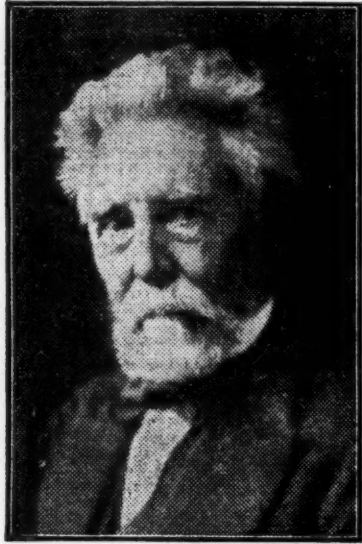
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Founded by Norman J. Colman.
Published by
Colman's Rural World Publishing Co.

Advertising Representatives,
HOPKINS & SHAYNE,
910 Hartford Bldg., Chicago, Ill.
GEO. B. DAVID CO., INC.,
171 Madison Ave., New York City.

WILLIAM N. ELLIOTT, Editor.
C. D. LYON, Associate Editor.



Norman J. Colman,
First U. S. Secretary of Agriculture.

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COLMAN'S RURAL WORLD is published every Thursday at 718 Lucas Avenue. Contributed articles on pertinent subjects are invited. Address all communications to **COLMAN'S RURAL WORLD**, 718 Lucas Ave., St. Louis, Mo.

Entered in the postoffice at St. Louis, Mo., as second-class matter.

Farmers generally should make arrangements to plant all the available land in wheat. There will be a double crop needed owing to the European war. They should also raise more livestock.

A correspondence course in swimming, no matter how thorough, would hardly be sufficient to render one immune from drowning in case of accident. Personal effort and persistence in learning to swim would be necessary to insure a degree of safety. Success in farming requires something more than demonstration by others; it requires personal effort. The improvement of the agriculture of a section will come when farmers individually are ready to practice on their own farms the best methods known for the region.

Dun's review says: Business is day by day adjusting itself to a war basis of values, risks and demand. The process of a readjustment to extraordinary conditions, however, is necessarily slow and merchants are obliged to exercise patience in dealing with the new and difficult problems that arise. The result is extreme caution, coupled, however, with a courageous view of the future. There is an underlying conviction that out of this crisis the United States is to attain a notable expansion in foreign commerce, and there is in particular a remarkable interest as regards the

South American trade. The absence of an American merchant marine with which to move foreign commerce is now the chief obstacle in the way of the restoration of normal prosperity.

Colorado is now having the benefit of another important irrigating tunnel, the Laramie-Poudre tunnel, west of Fort Collins, constructed at a cost of more than \$1,000,000. This bore is more than two miles long and takes water from the Laramie river into the Cache La Poudre, and then through a system of canals on to the lands to be brought under cultivation. When the entire system is completed, at an approximate cost of \$5,000,000, it is expected to put water on 125,000 acres in the vicinity of Greeley and Purcell in Colorado.

PATHOLOGIC ASPECTS OF VAGRANCY.

The acting superintendent in the New York Municipal Lodging-House has made a study of about two thousand vagrants. His examination shows that the immediate cause of vagrancy is not, in the great majority of instances economic, but pathologic. The common impression is that a great many of the vagrants of large cities are men whose advancing years have thrown them out of employment. It was found, on the contrary, that the majority of the men who applied to the New York Municipal Lodging-House were young—in fact, in the very prime of life. Of the two thousand men examined—3 per cent were under 21, while only 6.85 per cent were over 60.

It is also generally assumed that the majority of the vagrants are foreigners. There is an idea, too, that a great many of the vagrants in large cities are not city-born but have been attracted to the centers of population because of the ease with which an unearned livelihood may be obtained there.

The report, however, contradicts all of these a priori impressions. Of the two thousand men examined, only 2 per cent had been in this country less than three years, while only 9 per cent had been in New York less than one year. The average time of residence in the metropolis proved to be thirty-two years and four months; as thirty-six was the average age of the men altogether, they had lived practically all of their lives in the city and the superintendent adds that "practically all of these two-thousand were our own native sons."

About 35 per cent of the homeless men who seek the shelter of the municipal lodging-house are unemployed. Twelve per cent of them showed definite evidences of defective mentality. The infirm from age and those handicapped by the loss of a member represent about as many more. About 10 per cent are habitual loafers and confirmed beggars, who have lost the habit of work. Sixty-five per cent are willing and able to work but are hampered partly by lack of skill and partly by the fact that they are victims of the seasonal trades which employ a great many men at certain times of the year and very few at others, leaving men without any definite occupation for months every year.

Alcohol played an important role. About 50 per cent of these men proved to be excessive drinkers, a fact which is not nearly so significant as the admission of over 30 per cent that intoxicating liquors were the sole cause of their dependency and wretchedness. When out of work a great many of the men become discouraged and depressed and then are unable to rouse themselves to take up their labor again. The actual study of conditions in New York emphasizes the need for the physician's interest in social problems, says The Journal of the American Medical Association. Vagrancy among us is distinctly an American and not an immigrant problem. It is our own people who need care to prevent the occurrence of social breakdowns that are as serious in their way for the individual and the community as physical breakdowns. This is the day of prevention rather than cure, and knowledge is the best possible element in prevention. Undoubtedly social work in connection with dispensaries can do much

to relieve this condition and with the decrease of infectious disease social service becomes the physician's next duty.

HARVEST HANDS CARRY TYPHOID

Typhoid fever and harvesting often go together, says Dr. H. W. Hill, executive secretary of the Minnesota Public Health association. Records of the State Board of Health in Minnesota show that the extra help hired often brings germs to a farm, adds Dr. Hill. Sometimes such help is just recovering from a siege of typhoid, sometimes just sickening for an attack. Sometimes also such a person is perfectly well. He may have had the disease years before, or may never have had it at all, for typhoid germs will sometimes grow in a person without making him sick. Such persons are just as likely to give the disease to other people as those who have had typhoid.

For example, a woman (many typhoid carriers are women) in North Branch, Minnesota, washed milk cans for her sons. She had typhoid fever twenty-seven years ago. No typhoid developed in the village for seventeen years before she came, nor after she left, five years ago. But while the woman lived there, twenty-one cases of typhoid with several deaths occurred among people who used the milk from the milk cans she washed. The germs were in her bowel discharges; therefore, sometimes on her fingers, and so sometimes in the milk.

The danger in harvest time comes from the hands of strangers using the family roller-towel, dipping into the family drinking-pail, handling the family food, and from the use by the strangers of the family closet, especially if it is not fly-proof. Beware of the stranger who does not wash his hands well before he eats or drinks with you, and beware of the non-fly-proof closet, especially in harvest time.

IDEAS OF PUBLIC HEALTH CHANGING.

"The New Public Health" is a new phrase for a new thing. The phrase originated with Dr. H. W. Hill, executive secretary of the Minnesota Public Health association. As to the difference between new and old ideas of public health, Dr. Hill says: "The old public health imagined danger from disease lurking everywhere. The new knows to a nicety the few definite places where real danger lies and has no fear of the dangerous looking, but really safe places, long terrors to our forefathers. The old dreaded all visible dirt; the new recognizes that visible dirt rarely produces disease. The real danger lies only in a kind of invisible 'dirt,' the germs of disease. The old imagined that disease germs flourished in stagnant water, mud, garbage, and like things. The new knows that disease germs are delicate things, requiring the special food, temperature, and other conditions they seldom find outside of the living human body. The old did not distinguish harmless and useful germs from real disease germs and dreaded all 'germy' surroundings. The new sees that disease breeds in, and comes from, the infected person, not the surroundings. The old naturally made much of external cleanliness. The new concerns itself chiefly with internal cleanliness. In brief, the New Public Health substitutes actual tested-out facts for the often illogical traditions, almost superstitions, that went by the name, Public Health, twenty years ago, even ten, even five years ago."

It is the purpose of this department of the University Farm Press News to show how the New Public Health has simplified the problems of healthy living and the avoidance of disease. It will contain plain talk, but in such matters plain talk is needed.

TIMELY ADVICE.

The terrible war now devastating Europe is likely to last a long time, but no matter how short a time, there will be very small chance for Europe to produce one-tenth of the food stuffs needed next year, all her able-bodied men being engaged in a death struggle. This being the case there

is an opportunity offered the American farmer—never before equaled. In this connection we reprint an editorial from the St. Louis Republic which should be carefully considered by all wheat raisers:

"The world's wheat supply this year is at least 300,000,000 bushels short. The grain-growing areas of the Old World are now overrun by armed men mobilizing, marching, countermarching and fighting. The season of seed-time is at hand, but the European peasant is carrying a rifle, while his plow rusts in deserted fields.

"Armies must be fed. The great nonproducing population of the most congested continent on the globe must have bread. This bread must come from the New World. The fields of the United States, of Canada and the Argentine must supply it if it is supplied. The wheat fields of Austria, of Germany and of Russia will be desolate next year.

"For the American farmer there was never such an opportunity. Every available acre of wheat lands should be sown this fall. There is every indication that wheat prices will be higher in the next two years than at any time since the Civil War. We have not, as yet, felt the force of the real demand that must come from Europe. The capture of grain-carrying vessels by the allies and the stored-up stocks of food have put off the evil days of hunger for the time. The sudden rise of wheat was merely anticipatory of later conditions, but it will be noted that this rise is holding.

"Dollar and \$1.25 wheat are mere indications of what the prices must be if the war is prolonged for as much as sixty days. To gain an idea of what warfare does to wheat prices we must go back to the 'sixties. In 1863, three years before the firing on Fort Sumter, the range was between 55 cents and \$1.25. In 1861 the range was between 68 cents and \$1.45. In 1864 the effects were beginning to be felt and the prices shifted from \$1.25 to \$2.40. No wheat sold for less than \$2 in 1866 and the highest was \$3.50, while in 1867 it rose to \$3.85.

"It must be remembered that this was a national and not an international situation. Just now we are dealing with a world condition unprecedented in all history. Should the war end before the New Year, prices must still infallibly rise because of the tremendous wreckage and wastage in the agricultural industry of the Old World. Fields will lie fallow, the workers will have been buried on the battlefields, but the people must still be fed.

"Agricultural experts have taught crop-diversification for a generation. This autumn would seem to be the time to ignore these precepts in so far as they might prevent the seeding of a great wheat acreage. The world will want bread this year, the next year and the next. Wheat at \$1 a bushel is a tremendous money crop. What will it do for the prosperity of the American farmer and the nation at \$2 or even higher?"

There are about 2,225,000 miles of public highway in the United States. Think of the aggregate loss of power profit and patience that is caused by the mud and sand which compose so many miles of this total. But we're getting around to better roads by degrees. There are some fine examples now of the kind of roads that we're going to have more of in the near future.

From July 1, 1913 to June 13, 1914, a trifle over 10,000,000 bushels of Argentine corn came into the United States. Over 145,000,000 bushels went from Argentina to other countries. That doesn't look as if the American farmer need fear anything like a golden deluge of cheap corn from Argentina. Ten million bushels doesn't cut a very wide swath in the big field of home needs.

Fruit growing and poultry raising combine very nicely. Chickens eat many insects that are harmful to fruit. Plum trees do well in a poultry yard, because the chickens will keep them free from injurious insects. It is a good plan to have moveable houses for the poultry that may be shifted from one part of the orchard to another.

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In the next three months we want to give away \$10,000 worth of useful and valuable presents to advertise the People's Supply Company. We want at least one person in every town to have one or more of these splendid presents, and we want the good friends and readers of Colman's Rural World to be the first to have their choice. These presents consist of Watches, Rings, Fountain Pens, Locket, Cameras, Suits, etc. Look over the list and carefully read the description of each and see what you prefer. We only have room to show you a few of the many presents you may select from.

Our offer makes it so easy to get one or more of these useful presents that every boy or girl, man or woman reader of Colman's Rural World should sign the coupon below. All we want you to do is distribute 20 of our swell Art and Religious pictures amongst your friends and neighbors at 10 cents each. These beautiful pictures are 12x16 inches in size, and lithographed in many beautiful colors. Nearly everybody you show these pictures to will thank you for the opportunity of getting one or more at 10 cents each. As soon as you have distributed the 20 pictures, send us the \$2.00 you will have collected and we will send you your choice of any one of the presents you select from our big list of premiums.



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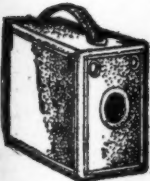


The barrel is a genuine guaranteed hard rubber; cap is of the same material. The barrel is inlaid with mother of pearl decorations and you can see the beautiful design from the illustration. The inlaid work is held in place by two fancy gold plate bands; pen point is guaranteed 14K solid gold, and in every respect this fountain pen is first class.

Locket, Chain and Ring

Hand engraved. Crescent design set with eight extra quality brilliant white stones. Locket is suspended from a 22-inch chain, and will hold two pictures. With each locket and chain we also will give an extra gift of one gold-filled ring set with 3 brilliant stones.

Camera Outfit



This Camera outfit includes camera with automatic shutter, plates, developing tins, developer and fixer and full instructions. Will take clear and sharp pictures. Covered with moroccoette.

Vanity Case

Made of rich German Silver which has an extra finish, and is decorated with fancy flower border. This case has a mirror of good quality, and powder puff compartment and places for quarters, dimes, and nickels, also a strong catch that will hold cards and bills. Attached to this Vanity Case is a ten-inch chain. Size of case is 8 1/2 x 2 1/2.



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Made of seal grain with gusseted ends welted, heavy cloth lining, fitted with pockets for mirror, bottle, coin purse, etc., Bag measures 10 1/2 x 8 1/2 inches and is fitted with fancy French gray silver finished frame, has a double strap handle.



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SEPTEMBER.

September comes along with balmy breeze;
And lo, the vineyard with the loaded vines;
The air is filled with song—oh, happy times—
And pears are hanging plenteous in the trees.

Lo, down the street comes cheerful faces bright;
For the school days with girls and boys are here;
While bigger folks return from far and near;
And in their work do seem to take delight. ALBERT E VASSAR.
St. Louis.

ASTRONOMICAL KNOWLEDGE.

Editor Rural World—I will try to answer R. C. Worth's queries in regard to astronomical knowledge and its attainment. I do not wonder that he is surprised that the world has learned so much about God and his works, when the bulk of the people view with cold indifference the mighty works visible in the heavens. As to myself, I will say that I have been an astronomical student for nearly 70 years, and most of this time has been spent at hard work on different farms, and only at odd times did I get time to peep into an astronomical work, or to make celestial observations. I worked by the year and by the month for different farmers, at very low wages, and had a very poor opportunity to master my favorite studies of astronomy and theology, which were studied during the long period mentioned above, but only at odd moments as I could be spared from the hard work in the field. I never attended any but a country school, and did not attend that as much as I should. My grammatical knowledge is like that of the immortal Lincoln, and very defective. At a very early day I saw the importance of the two studies I have mentioned, and by carefully using the small fragments of time that passed away while not at work I managed, after many decades, to store away some knowledge of those subjects. Others can do the same, but they will tell you they have no time. Yes, that is the great drawback, but I know that many of them have more leisure hours than I have ever had. No one need to think that theology is only intended for preachers, for that is a grand mistake, as every human being should be well versed in theological matters, which are everywhere neglected and unappreciated, even in enlightened countries. I have no time now to dwell upon the importance of making a life study of such subjects, but may, in the future, touch upon these subjects.

If friend Worth will familiarize himself with Paley's natural theology and Charles Hodges' work on systematic theology, and also if he will procure a half dozen of the best books treating of astronomical subjects, he will, in the course of time, no longer wonder how we are enabled to learn of the divine plans and designs. Such reading should be followed by deep meditation, long and continued, for to read such books as you would a novel would cause no lasting benefit.

As to the verse mentioned: "The Ways of the Lord Are Past Finding Out," that does not mean that we cannot find out even a part of them. By deep reasoning, astronomers have been allowed to find out many of God's ways, both on earth and in the starry heavens, yet the knowledge so obtained, vast as it appears to us, is as nothing compared to the whole, and we are not allowed to acquire any knowledge here of God's ways that he does not now want us to learn. The work being progressive, it is the divine plan that the mysteries of creation shall be unfolded gradually, this being more to His honor and glory, and the best for our well being.

Mr. L. E. Clement was at my place a few years ago, and in our conversation I learned how he obtained his wonderful knowledge of horses. He

made it a special study, his energies being all directed to one point.

Mr. C. D. Lyons' profound knowledge of agricultural science was never obtained by careless observation and study. Deep reasoning, connected with long years of experimental work with his own hands resulted in fitting him for a teacher in agriculture. Half-hearted business operations will never pay.

I have scratched these lines down in a hurry, as I am very busy cutting corn fodder for six horses and four head of cattle, and have only one ton of hay on hand and no straw, and am unable to hire help. The case is somewhat desperate, as the fodder is drying rapidly and I will need 200 shocks. But I am not so active as I was in 1849, when I first helped in cutting two large fields, so I may not be successful. I will go at it though like contending armies fight on Belgian soil.

It has been raining this afternoon, the 24th of August. More anon, probably. J. M. MILLER.

FRUIT NOTES AND TEMPERANCE.

By Jacob Faith.

Editor Rural World:—The last freezing weather reduced the peach prospect to half and less of a crop. But in localities every other fruit promises well. How long will it be until people learn to head peach trees low so they will be secured from being killed by cold?

The best time to plant watermelons and other similar vines is from the first to middle of May.

Best time to set sweet potato plants is from the first of May until the first of June.

Could the birds talk they would say "I am your friend, but I have to stay out of gun shot from you."

Could the strawberries talk they would say: "Grow me, I give health, and am easier taken than pills and other medicines."

Could the apples talk they would say: "The all-wise Creator gave me to you before bread and meat; why am I neglected?"

The grape would say: "I was made to nourish you but you fermented me and made me into alcoholic drink and abused me. The good woman, the best gift to man, was the first to urge the prohibiting of its use in an alcoholic form."

The red men—the Indians—found a weed and named it tobacco. They chewed it but could not swallow it. They spit it out of their mouths and set fire to it and smoked it. The white man followed their example and smoke, chew and spit it out of their mouths. A horse and cow won't eat tobacco. A hog can't stomach it. It sickens a dog and kills a cat, and would also kill men unless they spit it out. Why not chew what we can swallow after chewing?

Were it possible for one to go from this globe and visit a planet where reason governs and tell the inhabitants that you came from a world where a weed was grown called tobacco that furnish no nourishment to sustain life and was extremely filthy and injurious to health and that more money was spent for it than for bread.

Would we be looked on as an intelligent race of people?

Could General Grant and Senator Hill, whom tobacco killed, be raised from the grave, they would urge the American people not to use tobacco. Forty or 50 years ago when I urged temperance I was laughed at. I am now urging young men and boys not to use tobacco and will do so as long as my health and mind is spared. I write to urge men and boys not to use tobacco. Mothers, read this to your sons and hand this paper to your neighbor.

HONEY FOR RHEUMATISM.

Dr. Bonney, of Iowa, claims that pure honey will cure rheumatism. For some time we have read of bee stings being a cure for rheumatism, but nothing definite was ever the result of any experiment. Dr. Bonney says that he has learned that it is not the bee stings which make bee-keepers free of rheumatism, but due to honey being one of their staple foods. Dr. Bonney suggests it a good rule to take two ta-

blespoonsful of either comb or strained honey five times daily, at 8 a. m., 10 a. m., 2 and 4 p. m., and at bed time, and that no fluid of any kind be taken for at least an hour after taking the honey.

IMPRESSIONS OF SALT LAKE CITY.

Sedalia, Mo., Aug. 26, 1914.

Dear Home Circle Friends: Neglected—perhaps—but never forgotten, I am enclosing with this note, my sincere regards to you each, and all, and my impressions of Salt Lake City, Utah, where with my granddaughter Margaret, I spent several weeks of this torrid summer. Most cordially your friend, MAY MYRTLE.

Salt Lake City, Utah.

Unlike any other city I have ever visited, Salt Lake is a combination of forest and plain, mountain and valley, country and town. In the clean sweetness of the atmosphere, the fragrance of many flowers, the luscious smell of delicious fruits, the trees full foliaged and freshened often by gentle showers, it is the country.

In the hurry of trade the rush of tourists the splendid shops, magnificent store and office buildings, grand hotels, ornate and beautiful churches, including the Mormon temple and tabernacle—it is the metropolis of all the west.

The Mormon emigrants making their slow and toilsome way, a journey made perilous by hostile tribes of savages, across menacing desert sands, over grim, rock-ribbed mountains, through dismal canyons, and up precipitous slopes, must have visioned this valley, as Moses did the promised land, or they had never lived to pitch their tents and make a permanent home in this wonderful valley. How they have prospered! From the few travel-worn desolate, but ever hopeful few, poor in everything except indomitable courage, behold them now, a great, rich, progressive people, revering the past as the children of Israel revere their history of the escape from Egyptian bondage, and the 40 years' journey through the wilderness.

The average Mormon is a most courteous and kindly disposed person. From the suave and gentlemanly first executive down to the small vendor of the daily newspaper, the visitor to Salt Lake meets only courteous and kindly treatment.

Invading the office of Governor Spry without credentials of any sort myself and granddaughter were received with a cordial smile of welcome, shown every possible courtesy and attention for half an hour, while men, and possibly important business, waited our departure.

Having obtained the information we desired we were escorted to the door by the governor and cordially invited to call again.

"A real governor, and a real man," was the testimony of a gentile from New York City, who has lived in Salt Lake City for a score of years, and we earnestly subscribed to this sentiment.

Truly, "a mother in Israel" is "Aunt Emmeline Wells," who at the age of 90 is at the head of the Woman's department of charities, with offices in the Bishop's palace, where she personally superintends every detail of the work. Her faculties are unimpaired, she does not wear glasses; her hearing is perfect; she is not stooped, but erect, and she wears good clothes, fashionably made, and wears them with all the ease and grace of a woman of 50 years. Her daughter—who is the daughter-in-law of the former Senator Joseph Q. Cannon, is almost as young as her mother, and they are together—the most remarkable pair of distinguished ladies it has ever been my good fortune to meet. Said Mrs. Cannon—speaking of her mother—"she never forgets a name, or a face, she remembers everything she hears, and everybody, she meets." Truly does she exemplify in her wonderful powers, the fact that "age is only a matter of thought, a yielding to a sentiment that should be resisted and cast out of our consciousness."

Among the places of interest to the visitor here, are first the daily organ recitals at the tabernacle, which commences promptly at 12 noon and lasts

Sick Headache, Indigestion and Other Ills Conquered.

When nature falters and from overwork a tired, wornout body is unable to perform its natural functions, ELLA R. BERRY'S CREOLE TEA is indicated and may be confidently relied upon to stimulate the liver and by freely taking it all the year around, by old and young alike, Chronic Constipation, Indigestion, Colds, Rheumatism, Bad Complexion and Skin Diseases can be relieved and overcome. For nursing mothers, after it is steeped, as told on each box, and for children, there is nothing better than ELLA R. BERRY'S CREOLE TEA in Herb form. A little sugar can be added to the tea and mild doses, administered from time to time, will keep them well and healthy. At all drug stores, 10 cts a box.



10c

This Serviceable 8th Avenue Dress is a remarkable bargain! You would expect to pay \$20 for an article of equal quality. We show it here to give you an idea of the great money value offered in our Big Bargain Sale. Write for it today—now.

Order Now

Send 10c for one of these big dresses at our risk. Your money back if not perfectly satisfied. Made of good quality blue and white checked gingham—very durable and handsome like new. Neatly bound around the edges with white cord. Has a double-stitched waist band. Edges extend around the neck. Has neat patch pocket in front. Color—blue and white check only. Order by No. 2548. We pay 10c postage. Each, only 10c.

Send Today for Bargain Book

of wearing apparel in new styles. Mailed from the factory. Satisfaction guaranteed or your money back. Don't miss this great opportunity. Write today—now.

W. & H. WALKER 872 Herr's Island Ave. PITTSBURGH, PA.

half an hour. Salt Air, a resort by the great lake, where thousands disport themselves in the salt waves, lagoon—a similar place east of the city, numerous parks, of which Liberty park is the largest and finest. Wandamere next in attraction. A trip to Fort Douglas, and to Emigration canyon where a large and beautifully appointed hotel stands grand and high above the valley—"Pine Crest"—its name, and last but not least, the penitentiary, one of the most humane and sanitary prisons in the United States, a true reformatory in which among 989 men prisoners, there is but one woman, which is the highest argument in favor of universal suffrage possible to conceive of. The magnificent Hotel Utah, without one discordant note in its architecture or furnishings, to each and all of these the tourist may go without "rubber neck" car, or megaphone accompaniment, for they each may be reached by street, or interurban car, thus seeing them the tourist is saved several dollars and considerable annoyance.

There are bubbling fountains on every square, running water along all the principal streets, men are kept constantly busy with scoops and brooms removing everything that could offend the eye, or the nostrils. It is claimed that Salt Lake is the cleanest city in the world and personal observation compelled me to believe it. The parks are kept in perfect condition, the walks and drives could not be finer, nor the grass more luxuriant and vivid emerald, yet there are no "keep off" signs to tempt the visitor, and those who wish may traverse the emerald expanses when and where they will, yet strange to say, it is seldom that you see people walking on the grass, they keep religiously to the walks and drives. I once heard of a man who desired—when he left the mortal tenement—to go to Paris for permanent residence. I think that if choice of all the earthly places I have seen were offered me as a permanent place of future abode, I should without hesitation say, "Salt Lake City, Utah."

Are you enjoying muskmelons and watermelons? Hodoo and American Beauty muskmelons and Kleckley's Sweet watermelons are quite easy to raise.

DISHERS OF CORNMEAL.

Buttermilk Cornmeal Mush.—White cornmeal cooked in buttermilk makes a dish which resembles cottage cheese in flavor. It may be eaten hot, but is especially palatable when served very cold with cream. For this purpose it is sometimes molded in cups. In making it, allow 1 part of cornmeal to 6 parts of buttermilk, and one teaspoonful of salt to each cup of meal.

Baked Cornmeal Mush.—When cornmeal mush is partly done, pour it into shallow pans, making a layer not more than 2 inches thick, and cook in an oven until it is well browned. The product secured is very similar to the original "Johnny cake," which seems to have been simply a cornmeal mush cooked in the oven, or, in some localities, fried. The name has with time come to be applied to a very large variety of corn breads.

Cornmeal Dumplings.—Take 2 cups of cornmeal, 1 teaspoon of salt, boiling water and flour for dredging. Mix the meal and salt; pour boiling water over the meal and stir thoroughly, using water enough to make a thick paste. Form portions of the paste into flat dumplings about 3 inches in diameter.

Have ready a kettle of boiling water and drop the dumplings in carefully, cover, and cook 20 minutes. These dumplings are often cooked with turnip tops or other greens, with

or without the addition of a ham bone or a piece of fat pork. Some cooks dredge the dumplings with flour before boiling them.

TWO OF TURNIPS.

Baked Turnips.—Peel about one-half dozen small turnips, cut them into thick slices and parboil them. Then take out, drain carefully; arrange in layers in a fireproof dish. Sprinkle each layer with salt and pepper, chopped parsley and small dabs of butter. Pour over a little milk, about two tablespoonfuls, and bake in the oven until cooked. Serve in the dish.

Cream Turnips.—Peel as many turnips as are required, cut them into cubes and cook in salted water until nearly tender. Then simmer for about ten minutes in this cream, seasoned with salt and pepper. Add one-half teaspoonful of sugar and two ounces of butter. Shake the saucepan until all is perfectly united, and serve immediately.

Peel and slice thin three large white onions and soak in milk for ten minutes, then drain and dry on a towel. Separate the slices into rings, put a dozen or more at a time in a frying basket and plunge into smoking hot fat. Take out as soon as delicately colored, drain for a moment on unglazed paper, turn into a heated dish, dust lightly with salt, and serve at once.

PATTERNS FOR RURAL WORLD READERS.

In ordering patterns for Waist, give bust measure only; for Skirts, give waist measure only; for children give age only; while for patterns for Aprons say, large, small or medium.

1023—Dress for Girls and Misses, With or Without Tunic.

Cut in 5 sizes: 12, 14, 16, 17 and 18 years. It requires 6 yards of 44-inch material for a 16-year size. The skirt measures about 1 1/4 yards at its lower edge.

1024—Ladies' House Dress.

Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. It requires 5 1/4 yards of 36-inch material for a 36-inch size, which measures 2 1/4 yards at the lower edge.

1032—Girls' Dress.

Cut in 4 sizes: 6, 8, 10 and 12 years. It requires 3 1/4 yards of 44-inch material for an 8-year size.

1026—Girls' One-Piece Dress.

Cut in 4 sizes: 2, 4, 6 and 8 years. It requires 2 1/4 yards of 44-inch material for a 6-year size.

9823—Ladies' House Gown or Lounging Robe.

Cut in 3 sizes: Small, medium and large. It requires 5 1/4 yards of 44-inch material for a medium size.

9746—Ladies' Costume, With or Without Chemisette and Tunic.

Cut in 5 sizes: 32, 34, 36, 38 and 40 inches bust measure. It requires 7 1/4 yards of 44-inch material for a 36-inch size.

9879—Ladies' Negligee or Dressing Sack and Cap.

Cut in 6 sizes: 24, 26, 28, 30, 32 and 34 inches bust measure. It requires 3 1/4 yards of 36-inch material for a 36-inch size. For the cap, 1/4 yard of 27-inch net, all-over embroidery, or lawn, percale, dimity, dotted swiss and silk are suitable.

1046—Ladies' Waist, With or Without Front Facing.

Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. It requires 2 1/4 yards of 44-inch material for a 36-inch size.

These patterns will be sent to RURAL WORLD subscribers for 10 cents each (silver or stamps).

If you want more than one pattern, send 10 cents for each additional pattern desired.

Fill out this coupon and send it to COLMAN'S RURAL WORLD, 718 Lucas Ave., St. Louis, Mo.:

Pattern No. Size Years

Bust in. Waist in.

Name

Address



Special Bargain Offer
3 dresses for \$1.59
H8818—Special 3-dress offer that will give full six months wear. All three dresses are well made of strong, serviceable material. One dress is of tan linen, hand-dyed with blue and prettily embroidered; another is of blue linen with black and white stripe trimming; and the third is of blue Scotch plaid Gingham with full gored skirt, scalloped embroidery edging, etc. (Size 8 to 14 yrs.) A splendid bargain and a good, big \$2.00 value. All washable dresses of smart style. Special, postpaid.
3 for \$1.59



CHILD'S FLANNELETTE DRESSES
4 for 95c
H4895—You should take advantage of this special offer of four splendid dresses of good serviceable flannelette. They are well made, pretty garments, beautifully trimmed and full sized, and come in dark gray colors and in sizes 2 to 6 yrs. Excellent values. Special, postpaid.
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Plush Muff FREE with this Plush Coat



Plush Muff FREE
With This Plush Coat \$5.98
XCC598—Immensely popular plush coat with matched 16-inch muff (as pictured) FREE. A dressy, fashionable 50-inch coat, splendidly tailored of firmly woven, heavy quality. The perfect fitting, stylish straight lines are very becoming and the coat is substantially lined throughout with black satin. We have sold thousands of similarly low-priced coats in past seasons, but never before have they been half as good in quality and durability. Black only. (Sizes 34 to 46 Bust.) A superb wrap, wonderfully low priced; yet coat with muff FREE and postpaid in the U. S.

\$5.98
HCC899—Same as XCC598 in about sizes (41 to 51 bust)
\$6.99

Standard Mail Co.
Dept. 491, New York City

Beautiful Plush Muff Free with this Plush Coat at \$4.59

XRR450—This beautiful, dressy, black plush coat is a wonderful value at our low price. And yet we give a matched plush muff FREE with every coat. The rich, lustrous quality, the splendid warmth and the charming trimming combine to make this the best value of the season. Made in full bust style with large shawl collar and cuffs of moiré gray chinchilla fur-plush. Comes in sizes 8 to 14 yrs. Coat with FREE muff, postpaid in the U. S., \$4.59



The Best Dress Ever Offered For \$1.39

H8139—A typical "Standard" dress, combining wonderful value with charming style and good quality. Neatly made of serviceable Diagonal Suiting, a pretty, new material in navy blue, green or wine. Becomingly bloused bodice with "drop shoulders," embroidered white collar and cuff set and Roman stripe velvet belt, drawn through loops. Buttons and bow to match. The broad front fold conceals closing and in skirt a fold suggests the fashionable Russian tunic. (Ladies' sizes 34 to 46 Bust; Misses' 14 to 18 yrs.) A mighty fine \$2.00 dress, postpaid in the U. S., \$1.39

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Dept. 491, New York City. Kindly send me FREE the "Standard" Bargain Bulletins beginning with the new Fall Bulletin.

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COLMAN'S RURAL WORLD, Advertising Department, 718 Lucas Ave., ST. LOUIS, MO.

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FOR a square deal in wheat lands, ranches, write R. C. Buxton, Ute, Nees Co., Kan.

WELL IMPROVED 350-acre farm, \$45 per acre. Address owner, C. A. Douglass, Hancock, Wis.

JUDITH BASIN farm land bargain. Write for list. A. Larson Land Co., over Bank of Fergus County, Lewistown, Mont.

LITTLE RIVER VALLEY LANDS, rich and cheap; on railroad. Robert Sessions, Winthrop, Ark.

TWENTY ACRES, four of strawberries, two of grapes; nice chicken range. W. W. Arthur, Box 1, North Emporia, Va.

FOR SALE—146 acres second bottom land, 1/2 mile from the city of Concordia. C. B. Haldeman, Concordia, Kan.

YELLOWSTONE VALLEY LANDS—Alfalfa, sugar beet, wheat and stock ranches. Write for list. The J. A. Hardin Real Estate Co., Hysham, Mont.

FOR SALE—160 acres good level unimproved land; near railroad. Write today. I need the money and will sacrifice. L. H. Williams, Sunflower, Ala.

FREE GOVERNMENT LAND—Near 500-000 acres in Arkansas now open to homestead entry. Guide book with lists, laws, etc., 25c. Township map of state 25c additional. L. E. Moore, Little Rock, Arkansas.

THE K. C. RANCH for sale, comprising 3,000 acres of first-class clay land 3 miles southwest of Barge, Custer county, Nebraska. Good improvements, good water; 400 acres in crop. Have cut prices very low; easy terms. Must sell at once. F. T. Walker & Co., Omaha, Neb.

FOR SALE—My home farm, 97 1/2 acres, Independence Co., Ark.; 75 acres in good state of cultivation four room house and good barn, good orchard and plenty of good water; 2 miles from Batesville, the county seat; four miles from railroad. Price \$20 per acre. For further information apply to S. G. Burba, Pfeiffer, Ark.

THE FINEST lands, farming and live stock. Excellent high schools, good churches, good people and society, good health. Lands grows alfalfa, truck, clover, cotton, corn, oats and best of grasses. Climate magnificent, abundant rainfall, though not a flat, wet country. Good drainage. From two to four crops per year can be grown on our lands. Good pasturage the year round. Write to E. B. Fields, Edison, Ga.

NORTH CAROLINA FARM for sale, 67 acres fine rich land, price \$30.00 per acre in Granville Co., N. C., on public road, three miles from depot, eight miles to Oxford, N. C., county seat. Good young orchard; new tobacco barn and pack house; good spring of water; 57 acres in timber; adapted to the growth of corn, wheat, oats, potatoes and all kinds vegetables, tobacco and cotton; very fine tobacco land in fine tobacco belt; healthy climate. Apply to R. D. Sears, R. 2, Kittrell, N. C.

CLOVER.

SWEET CLOVER, white and yellow. Sow now, as the seed does well to lay in the soil a good while. Mrs. J. T. Mardis, Falmouth, Ky.

DOGS.

TRAINED COON DOG for sale. Wm. Seeldt, Jr., Trenton, Ill.

BLOODHOUND PUPPIES—English, registered, pure-breds. W. N. Cavin, Mt. Holly, N. C.

COLLIE FEMALE PUPS, eligible, bred for workers of royal breeding. Oliver Latschaw, Carlisle, Indiana.

BEES AND HONEY.

NULL'S FAMOUS Melilotus Honey—10-pound pail, prepaid, express office for \$1.40. W. D. Null, Demopolis, Ala.

BEST QUALITY new clover honey, 20-lb. can, \$3.45, two or more cans, \$3.30 each. Sample 10c. Price list free. M. V. Facey, Preston, Minn.

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CYLINDER rebored, including piston and rings, \$7.00 to \$11.00. Sterling Engine Co., 331 S. Clinton St., Chicago, Ill.

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LEARN AT HOME—Bookkeeping and business. Low cost. Easy terms. Positions secured. Write for free trial. Brown's Correspondence School, Dept. A, Box 507, Freeport, Illinois.

AGENTS.

WILL PAY reliable woman \$250.00 for distributing 2,000 free packages Perfumed Borax Washing Powder in your town. No money required. W. Ward & Co., 214 Institute Pl., Chicago.

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EGGS—Single Comb Rhode Island Reds—\$1 for 15. Oak Hurst Yards, Inskip, Tenn.

EGGS AND STOCK—Reds, Rocks, Wyandottes, Leghorns, Minorcas, Orpingtons. L. C. Diamond, Mankato, Minn., Box 377.

FOR SALE—Thoroughbred turkeys, geese, ducks, 13 varieties of poultry, guinea, bantams, dogs, hares, rabbits, fancy pigeons. Write your wants. D. L. Bruen, Platte Center, Neb.

LIVE STOCK.

REGISTERED HAMPSHIRE HOGS, best quality, reasonable prices. Frank Franklin & Sons, Vinita, Okla.

FOR SALE—Registered and vaccinated, Cherry Red Duroc-Jerseys. F. S. Welis, Imboden, Ark.

FOR SALE—Registered Jersey cow, 12 years old, and heifer, 16 months, \$200.00. W. C. Eakin, Derby, Ohio.

FOR SALE—Splendid thoroughbred Jersey bull, almost ready for service, price \$25. Z. Brickert, Martinsville, Indiana.

BERKSHIRES, registered, 120 lbs., \$20. Broad heads, large bone; Masterpiece breeding. H. C. Luttrell, Paris, Mo.

FOR SALE—Three extra fine thoroughbred yearling Oxford rams. James B. Smith, Bunker Hill, Ill., Route 17, Box 31.

NICELY MARKED GUERNSEY CALVES—either sex, \$17.50 each, crated for shipment. Edgeworth Farm, Whitewater, Wis.

SPOTTED POLAND CHINAS for sale. Five fall boars, spring pigs, both sexes. Prices reasonable. R. L. Mount, Polo, Missouri.

FOR SALE—Hundred Holstein cattle, from yearlings to cows. Carload lots a specialty. Frick & Hoesby, New Glarus, Wis.

FOR SALE—Hampshire-down Bucks. Registered Shire stallion and young Aberdeen-Angus bull. J. M. Allen, Kingston, Tenn.

AYRSHIRES—Choice bull calves from two to eleven months old, best of breeding. Come or write. Pioneer Home Farm, Milltown, Wis.

FOR SALE—A Short Horn bull calf, bred right and priced to sell. Also Polled Hereford. C. A. Davis, R. 4, Box 12, Thomas, Okla.

THREE YOUNG Berkshire boars, large English type; ready for service; also bred gilts and young pigs. J. I. Cain, McCall Creek, Miss.

200 HEAD of Holsteins. Owing to shortage of feed, will sell my entire herd of high-grade cows and heifers in the next 60 days. H. F. McNutt, Oxford, Wis.

REGISTERED Holstein Bull ready for service. Two of his dams averaged 55,261 pounds butter, 7 days, officially, \$150. R. M. Harriman, Appleton, Wis.

REGISTERED Shropshires, rams and ewes, all ages, from lambs up. Of good quality and breeding for sale at farmers' prices. Also my imported herd ram. Walter Miller, Iberia, Mo., R. F. D. No. 3.

FOR SALE—A choice 4-year-old registered Guernsey bull, with advance registry ancestry and 6 bull calves, sired by him that will be ready for service this fall; also, 7 high-grade heifers. Seymour A. Merriman, Ft. Atkinson, Wis.

HELP WANTED.

THOUSANDS Government positions open to men and women over 18. \$65 to \$150 month. Farmers have excellent chance. Write immediately for list of open positions. Franklin Institute, Dept. K-167, Rochester, N. Y.

MISCELLANEOUS.

NEW FLUFF RUGS, made of old carpet; sample free. Harding Bros., Cuba, Mo.

FOR SALE—Foxes and coons, skunks, minks. Address Spring Dale Farm, Box 33, Ouster, Ky.

ALFALFA—Colorado irrigated alfalfa hay for prompt shipment. Geo. R. Wilson, Lamar, Colo.

FOR SALE—Comb and extracted honey, Tennessee hams and bacon. J. E. Harris, Morristown, Tenn.

ANTI-SUFFRAGE literature mailed on request by the Cambridge Anti-Suffrage Association, Cambridge, Mass.

"HERB DOCTOR RECIPE BOOK" and catalog describes herbs for all diseases, worth \$ only 10c. Ind. Herb Gardens, Box 62, Hammond, Ind.

FREE—The Mining News, devoted to a reliable mining investment and mining news will be sent three months free to get acquainted. The Mining News, 2561 W. 37th Ave., Denver, Colo.

SEED AND NURSERY STOCK.

SWEET CLOVER SEED—Eight-pound sample, hulled, cleaned, \$1. Haskell & Haskell, Garden City, Kan.

FOR SALE—Sweet clover seed, white and yellow in hull, guaranteed pure. Price 16 cents per pound. Wm. King, Mason, Ky.

VALUE OF EXPOSITION TO AGRICULTURE.

(Continued from Page 5.)

therewith their colonies, and the United States and island possessions, and it appears that more than 881,000,000 people living upon more than 23,000,000 square miles of territory will be represented at the San Francisco fair, or specifically 881,000,000 population and 23,000,000 square miles of territory. If there should be disseminated from the exposition but a single idea that would render more productive the tillable area of this vast territory, how much it might mean in sustenance, and consequently to hope and happiness of these hundreds of millions!

There is much talk in the world of war and of possible migrations of races constituting a peril to established civilizations. The whole influence of the exposition is in the direction of spreading truth, knowledge and peace to the respective peoples in the territories which they now possess. Since all wealth is based on agriculture, since increase of yield alone can meet world-crowding, this department rises to supreme importance as a factor in order and stability in life. The acquisition of domain has ever been a prolific source of war—wars of aggression and conquest. But the exposition, by making agriculture a means of ample sustenance and more abundant life, renders unnecessary aggression and conquest of territory or even the peaceful migration of men. It carries ideas to people, ideas that multiply that which sustains the state, the soil, hence meets the issue of world-crowding, and points out the orderly and slow migration which builds up without tearing down.

In some of the states, the counties possess themselves of an expert in scientific farming, a part of whose duties consists in an examination of the soils of individual farms with recommendation as to crops best adapted thereto. The exposition does this on a colossal scale, dealing with continents, valleys, nations and peoples, becoming a clearing-house for the exchange of ideas valuable to the peoples as individuals and to the territories as organized into governments. Looked at from the economic viewpoint this coming together of the nations to assemble their native resources and products of the farm that each may learn of methods and means best adapted to respective peculiar needs is of civic importance not only beyond computation, but in no other way attainable. Agriculture at an International and Universal Exposition is in reality a promoter of good government and human happiness far and away beyond even increasing products and values.

The commercial value of increasing the agricultural output has another aspect of importance. A nation is primarily interested in a full utilization of its natural resources. It is by the exchange of its peculiar over-product that a nation secures a valuable balance of trade. And its overseas trade must always be based fundamentally on agricultural products, since manufactured products exchanged do not and cannot even cargo the ship both

ways. And furthermore where a ship is adapted to the carrying of grain or lumber by its construction, it only emphasizes the basis of overseas trade as dependent first on agricultural products.

The management of the Panama-Pacific Universal Exposition have so planned the placing of all exhibits as to fully illustrate the primal importance of agriculture in human economy. Not only will ample space be afforded all the nations for a full exhibition of their natural resources and products, but individual exhibitors engaged in the exploitation of any cereal, vegetable, dairy or forest industry, whether as a scientific or commercial process will be afforded ample accommodations. Industries based upon or allied to agriculture, such as all forms of the preparation of food products, all kinds and makes of machinery used in any form of culture, will be shown in a selective and comprehensive way. Awards by international and other juries will be given. Two splendid exhibit palaces, known as Food Products and Agriculture, together with many acres of ground, are devoted to these displays.

Practical farmers from the principal countries of the world will visit the exposition and study the exhibits. And it may be said, that, with the new impulse, the scientific thrill, which is today energizing this vocation throughout the whole world, the individual farmer is more than ever an expert. Exhibits will have greater meaning and thus accomplish greater good than heretofore. And to fail, as a state or nation to make an adequate display is to suffer a real and substantial loss. Not only will the nation or state fail of its rightful gain in civic uplift, but it will do a grave injustice to its farming community.

It has long been recognized, and it is no disparagement to any other class of citizens to say it, that stability in government depends largely on the farmers of a country. They stick to the soil, are permanent. They are removed from the turmoil of corporate and capitalistic competition, and their work and daily living, lend themselves to the broad and contemplative view out of which judicious appraisal of law and institutions must arise. Yet, at the same time, the life of the agriculturalist impinges upon and is affected by all the other leading vocations. In commerce he touches the markets of the world, for the price of cotton and grain is equalized and vitalized by the world's exchanges. In finance, he is affected by the banking system, even by the rate of call money and the price of consols. And today there is no department of scientific investigation of nature's laws that does not relate itself directly to his benefit. In like manner, legislative actions looking to railroads and corporations, come close to his work with plow and harvester. Indeed, in proportion as he compasses the need of his business for knowledge he becomes the most intellectual and intelligent of the citizenry.

To such a man eager for the assimilation of discovery in natural law, the holding of a 10 months agricultural institute in the colossal scale of the Panama-Pacific International Exposition is a priceless boon.

White spots may be removed from furniture by rubbing them hard with a piece of flannel wet in turpentine.

"Take care of the youth of the Republic, and they will take care of the Republic!"

"It is a maxim of German statesmen that whatever you would have appear in the life of a people, you should put into the schools."

"Educate a boy and you train a man; educate a girl and you train a family."—Banker Farmer.

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Horseman

King Couchman, 2:03½, seems to be the class of the stake pacers.

Bangor, by Bingara, reduced his record to 2:17½ recently.

Redlac, 2:07½, is the sire of the good three-year-old trotter Japalac, 2:21½.

Linda Wrona's record of 2:05½ is the fastest ever made by a trotter in a first race.

Four two-year-olds by Colorado E., 2:04½, have taken standard records this season.

Now it's Etawah, 2:03½. He clipped a fraction from his record at Grand Rapids.

Thistle Patch, W. L. Snow's stake pacer, is surely quite a bit faster than a 2:05 pacer.

Margaret Drulen, 2:05½, heads the four-year-old division of trotters. She is a race mare of the highest class.

When It Will Tell paced in 2:07½, 2:09½ and 2:09½ at Stretator, Ill., Frayola, by Expedition, 2:15½, was second.

At Lexington recently Roy Miller worked Judge French (2), by Justice Brook, 2:08½, a mile in 2:14, last half in 1:05½.

Harry Stinson worked The Toddler (3) in 2:14, last half in 1:04½, last quarter in 31¼ seconds at Lexington, a few days ago.

U. Forbes, by J. Malcolm Forbes, 2:08, dam Ivolette, by Moko, has set the season's record for two-year-old trotters at 2:12½.

Zack Chandler recently drove the two-year-old Rose Watts, by Gen. Watts, a mile in 2:13½, the middle half in 1:06, at Lexington.

When U. Forbes, the two-year-old son of J. Malcolm Forbes, 2:08, placed his record at 2:12½, Lady Anne, by San Francisco, 2:07½, was second.

The Ideal Farm stallion Prince Ingomar, by McKinney, now carries a record of 2:12½, made in the third heat of a winning race over a half-mile track.

Venice Belle, 2:14½, by Axworthy, 2:15½, with which C. W. Lazell is winning regularly in the Metropolitan Circuit, is out of Emma Offut, 2:11½, the M. and M. winner of 1896.

The new grandstand on the Washington fair grounds at Arden, Pa., has been completed and is one of the most up-to-date stands in the Keystone state. It has a seating capacity of 2,500.

With the four-year-old pacer William having a race record of two minutes flat, the son of Abe J. really looks to have a fine chance to become the world's champion performer at his gait.

Fire broke out one day recently in the training barns and covered track at King Hill Stock Farm, St. Joseph, Mo., and completely destroyed it. All the racing traps were lost, but the horses were gotten out safely.

The promising six-year-old stallion Cochato Boy, 2:16½, by Cochato (3), 2:11½, died July 26 at Montreal, Can., after racing second there in the 2:15 trot. He was the property of John Orr of Providence, R. I.

Lady Argot, 2:16½, by Argot Wilkes, was killed in a runaway at Hartford, Conn., a few days ago. She was nine years old and was owned by Emil D. Loretto, who has been using her in the matinees of the Hartford Road Drivers' Club.

At Poughkeepsie, N. Y., Jerome McKinney recently worked Alma Forbes, three years old, by J. Malcolm Forbes, in 2:12 and a two-year-old by J. Malcolm Forbes in 2:19. A

green mare by Peter The Great stepped the circuit in 2:12 for him.

Anna Bradford, a three-year-old pacing filly by Peter The Great, 2:07½, worked in 2:07½ for Tommy Murphy recently.

In the workouts at the Hudson River Driving Park, Poughkeepsie, N. Y., John Young recently worked the four-year-old trotter Belzona, by Bingara, in 2:11½; the three-year-old trotter Baralli in 2:17½, and the two-year-old Bacelli in 2:16½.

At Lexington, James Snell recently worked Lucille Bingen (3), a mile in 2:12, last half in 1:03½, last quarter in 31½ seconds. She is by Bingen, dam Lucille Marlow, and after she gets a record of 2:10 will join the band of brood mares at Curles Neck Farm.

FEEDING AND WATERING.

Horses should receive their regular and largest supply of water previous to feeding, and it may be well to supply a small quantity after feeding. Horses heated and fatigued may receive eight or ten quarts of water, even if cold, the rest of requirements being supplied after they are rested and cooled. On the road a few quarts may be given, no matter how much the horse is heated, but never give a large quantity at one time. On journeys give water every few miles. Water the horse often, so that he will drink only a small quantity at a time.

DOURINE OR EQUINE SYPHILIS.

This incurable disease of the horse has appeared in this country at various places for the past 30 years, but prompt measures have prevented its becoming widespread, says Spirit of the West. It seems that a rather extensive outbreak appeared in Montana among range horses last year and some of the infected horses were shipped to Minnesota and perhaps also into other states. In view of this fact the Minnesota State Live Stock Sanitary Board has issued a bulletin dealing with the cause, symptoms and treatment of the disease. They also warn stallion owners to examine all mares before allowing them to be served as the disease is readily transmitted from mare to stallion, and from stallion to mare during service. In fact, that is the only way in which dourine is spread. The cause of the disease is a microscopic form of animal life resembling bacteria in some respects. The symptoms are thus described by W. L. Boyd in Extension Bulletin No. 48 of the Minnesota College of Agriculture: "Dourine, according to some, may be either acute, i. e., quick and destructive, producing death in a short time, or chronic, which is the slow form, continuing over a considerable time before producing death. The chronic form is by far the more frequent. The onset and course of the disease is so slow that it often has an opportunity to spread over a considerable area before its true nature may be determined. The chief symptom noticeable in the chronic form is the gradual wasting away of the animal's body. The first symptoms may appear within ten days after breeding, although they do not usually appear for a month or two. The symptoms of a typical case of dourine appear in three distinct stages.

"In the primary stage the first symptom noticed after breeding is a thick, sticky, odorless, and colorless discharge from the sexual organs of either the male or female. These organs may also be swollen, but the swelling may easily be overlooked by the owner unless he is a very close observer. Sexual desire on the part of the stallion may be increased or decreased. Mares urinate at short intervals and present symptoms that are characteristic of the heat period. The temperature may be elevated, although this is not always the case. Doughy swellings may be present in the testicles and along the sheath. The fore and hind limbs may also be enlarged. The appetite, as a rule, remains unchanged until the later stages, when it comes irregular. The discharge from the genital organs of the female has a tendency to accumulate on parts below, removing the

coloring matter of the skin and leaving small, hairless white spots.

"In the second stage, the skin and lymph glands (small bean-shaped bodies which act as a filtering system) becomes diseased and the affected animal loses flesh rapidly, notwithstanding the fact that the appetite remains good. The animal at this time experiences the loss of muscular control in the hind legs, and symptoms of lameness become noticeable. Knuckling over at the fetlock joint, together with the swelling of one or both hock joints, may be noticed. The swellings of the genital organs and those that appeared along the abdominal wall, become less sensitive. It is during this stage, in typical cases of dourine that the eruptions of the skin similar to those of nettle rash appear. These eruptions, variously called 'dollar marks,' or plaques, may occur at any place on the animal's body but are usually confined to the regions of the neck, shoulders and loins. They are usually of short duration and may be overlooked. These are neither hot nor painful. The animal lies down a great deal at this period, and at times experiences trouble in getting up, on account of the increasing lameness or paralysis of the hind legs. The appetite remains fairly good. The lymph glands become greatly enlarged and form boils which discharge upon the surface.

"In plain cases the third or nervous stage may find the animal unable to rise or stand unless supported. The temperature may be above normal at this time and the appetite is poor and irregular. The loss of flesh progresses rapidly, and slow, angry-looking ulcers may become widespread over the body. Owing to the intense suffering the animal is usually destroyed.

"Dourine runs its full course in from one to two years. About 30 per cent of the affected animals die, and recovery is possible only at the beginning of the disease. Although the symptoms just described are typical, such plain, clear-cut cases are not common. Many cases of dourine will be found wherein a gradual loss of flesh, accompanied by lameness, will be the chief symptom noticed."

From the above it will be seen that dourine is practically incurable; hence the necessity of adopting preventive measures. Mares should be carefully examined before being bred. Those having external swellings of the genital organs should not be bred until such symptoms have disappeared. Similarly, the stallion should be examined regularly to make sure that the male organ is not diseased. Suspected cases should be promptly reported to state authorities to prevent the spread of the disease.

FEDERAL QUARANTINE FOR ILLINOIS CATTLE.

All cattle in five counties in north-eastern Illinois will be under a federal quarantine for bovine tuberculosis after October 1, 1914. The governor and the sanitary officials of Illinois will co-operate actively with the federal authorities in making this quarantine effective. The five counties affected are Lake, McHenry, Kane, DuPage and Cook.

Under the terms of this quarantine no cattle can be shipped from the five counties for dairy or breeding purposes unless they are accompanied by a certificate showing that they have been subjected to the tuberculin test and found free from disease. These certificates must be issued by an employee of the Bureau of Animal Industry, United States Department of Agriculture.

The necessity for this quarantine, which has been recognized by the state authorities, arises from the misuse on the part of a limited number of cattle owners and shippers of the privilege of inspection by private veterinarians. In some cases it has been found that health certificates have been issued for cattle which were obviously diseased. As a result 12 states now refuse to accept Illinois cattle unless accompanied by a certificate of federal inspection. In order, therefore, to protect the live stock in Illinois and neighboring states from the danger of tuberculosis infection it has been found advisable to do away altogether with private inspection and to place in the hands of the Department of Agriculture the reg-

SELDOM SEE

a big knee like this, but your horse may have a bunch or bruise on his Ankle, Hock, Stifle, Knee or Throat.

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will clean it off without laying the horse up. No blister, no hair gone. Concentrated—only a few drops required at an application. \$2 per bottle delivered. Describe your case for special instructions and Book & 5¢ free. ABSORBINE, JR., antiseptic liniment for man and horse. Relieves Painful Swellings, Enlarged Glands, Colic, Wounds, Bruises, Varicose Veins, Varicellitis, Old Sores, Allays Pain. Price \$1 and \$2 a bottle at druggists or delivered. Manufactured only by W. F. YOUNG, P. O. Box 58 Temple St., Springfield, Mass.

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ulation of the entire interstate movement of cattle from the quarantined area, and in the hands of the state board of live stock commissioners the regulation of the movement of cattle from the quarantined area to other parts of the state. With rigid federal inspection healthy Illinois cattle will be freed from any suspicion cast upon them by the practices of the small percentage of cattle men who have misused the privilege of private inspection in the past.

The regulations governing the quarantine are contained in a department order known as B. A. I. Order 217. Under these regulations ample provision is made for the movement under permits from the quarantined area of cattle for feeding or grazing purposes. Cattle intended for immediate slaughter may also be shipped, provided that the cars containing them are properly placarded so as to prevent the animals from being diverted to other purposes. The meat of such cattle is of course subjected to examination by United States meat inspectors. With these provisions it is not anticipated that the quarantine will cause any hardship to reputable owners or shippers. It is hoped indeed that these will co-operate in every way with the Department of Agriculture and the state of Illinois both in enforcing the quarantine and in eliminating bovine tuberculosis from this region.

JACKET THE MILK CANS.

Where milk is in transit for several hours, it is necessary to cool it down to near the freezing point. So soon as the milk can, however, is exposed to air temperature, and especially to the sun, the temperature of the milk begins to rise very rapidly and every precaution should be taken to keep it from being raised by the outside heat.

A series of experiments was recently made in shipping milk that was cooled to 50 degrees. The cans were set in an open truck, with no covering to shield them from the direct rays of the sun. The milk was hauled a distance of 13 miles and the average air temperature during the trip was 82.65 degrees. The experiment showed that the cans that were hair-quilt jacketed showed a raise of only 5½ degrees in three hours in the temperature of the milk. The cans that were wrapped with wet burlap showed a milk temperature of 58½ degrees in the same period, or a raise of 8½ degrees. The milk in the unjacketed cans rose in three hours to 78½ degrees, or a rise of 28½ degrees.

It is obvious from these figures that it pays to jacket the cans, in order to maintain a low temperature during transportation.

The straw from 40 acres of land has an average fertility value of \$100. For the land's sake don't burn it.

From the Producer To the Consumer

AGRICULTURAL CO-OPERATION.

(Third Article.)

The Payment of Dividends.

There are two leading types of dividends paid on stock. One kind is limited to a prescribed percentage of the par value of the stock and under some circumstances is called preferred dividend. The other, the common dividend, is the more usual, and may be of any size, depending on the earnings of the company. In many corporations there are two kinds of stock, preferred and common, and on these respectively are paid the two kinds of dividends. In many farmers' companies organized under the general corporations laws of the state it has been a common practice to pay high dividends, not infrequently 50 or even 100 per cent. It is evident that where earnings on stock are high they come out of the business done, and where the business is substantially all contributed by stockholders the dividends are first contributed by the owners. It follows that, unless by rare accident the business furnished by each member corresponds exactly to the proportion of stock held, that money is made out of one member's business with which to pay dividends on another member's stock. The way out of this is to pay a nominal dividend on stock, and either accumulate a surplus for distribution, as is often done by creameries, or to pay back to the members periodically a trade dividend. The nominal stock dividend and the trade dividend are the essential features of the famous Rochdale plan of co-operation so successful in England. These provisions are also to be found in the Wisconsin law.

The Federation of Co-operative Companies.

One great weakness of the co-operative company is its limitation to one little spot when the economies of the business demand a wider scope of activity. For example, independent companies of many descriptions have found it advantageous to unite into unions or federations in very many instances. This as a rule has been done to eliminate unnecessary costs such as duplication of marketing expenses. Co-operative companies in this country have been slow to form such federations. There are, however, a few notable examples of federations. The largest and best known one is the California Fruit Exchange which is made up of district and local companies. Attempts have been made to unite the local co-operative grain selling companies into federations but thus far without conspicuous success. Similar attempts have also been made in the butter and cheese business but no great progress has been made although some promising efforts are now under way.

Not only can a federation hope to improve further the marketing facilities of the local companies; but it can be of great service in furnishing information and inspiration to the locals. It probably could keep adequate and uniform accounts, and thus render one of the greatest of services. This would lead naturally to the question of audits, and no other authority is in as good position to audit the accounts of the local companies as would be a federation of such companies. For putting life into the co-operative movement a federation, or association, of local units is unquestionably of prime importance.

A Social and Educational Factor.

Co-operation in America has usually been carried on for the economic gain to be made out of it. Probably this gain must be considered a desirable and a prominent feature. Business ventures are normally run for gain and it seems useless to insist that some other, though higher, motive be substituted. It does not, however, follow that the economic motive must be the sole end and aim of a group of farmers acting together in a co-operative capacity. Indeed, in Europe, where co-operation is well past the experimental stage and

where it controls a large portion of the business done by farmers, a vast amount of community work is carried on around the co-operative company as a center. This work often takes the form of village improvements, such as street and park beautification, or perhaps recreation and entertainment in the form of theatricals promoted and guaranteed by a credit society. In some instances nurses are provided for the sick through a common fund. In short, the co-operative company becomes the motive force in community enterprise. The particular co-operative company which usually becomes such a force is the credit society. This no doubt is due to the fact that many enterprises need more or less financial backing and these societies from their very nature are able to act in this capacity. Community

enterprise requires community action and where there is organization for one purpose it serves as a convenient starting point for other undertakings. Character and Extent of Co-operation in Wisconsin.

Many excellent examples of successful co-operation among farmers are to be found in Wisconsin. It is true that the past furnishes many instances of failure but apparently the lessons taught by these failures have been well learned. There are not many co-operative companies started recently without a fairly good prospect of success. There is found almost universally a fair amount of business in sight and a fair amount of working capital wherever a co-operative company is proposed. Moreover, there is a disposition to find a good manager at whatever price it may be necessary to pay. Not so much can be said for each of the other points mentioned above as needful, but the outlook is encouraging. Very few failures are recorded among undertakings of recent years, and the number of companies and the amount of business

done by them is constantly increasing. Most numerous of these co-operative undertakings are the telephone and insurance companies. Not very much real business, however, is done through these companies. The first rank, so far as effect on the income and outgo of the farm is concerned, must be given to creameries and cheese factories. Approximately a third of the three thousand within the state are co-operative. Of growing importance are the fruit associations, live stock shipping companies, cow-testing associations, and potato warehouse companies. A small beginning has been made in marketing eggs co-operatively through the creamery. There are some half dozen fruit-selling associations, perhaps twenty live stock shipping associations, and about the same number of cow-testing associations. Not a great quantity of grain is grown in Wisconsin for shipment save for seed purposes, hence the number of co-operative elevators is small.

Steps in Organizing.

When a farmer, or a small group

Get These Three Dolls

In every home where there are little girls or boys there should be plenty of dolls to make the little folks happy—and I will make it easy for you to get them.

Every little girl or boy will love Anna Belle and her two baby dolls. The illustrations on this page do not begin to show to you what these dolls really are. This is by far the prettiest family of dolls we have ever offered our readers. We have sent thousands of dollies to girls and boys, but Anna Belle is different and prettier than all others. Anna Belle is bigger than a baby—over two feet high—baby clothes will fit her and you can bend her legs and arms without fear of breaking them. She can sit up in a chair or sleep in baby's own bed. Any little girl or boy would be proud to have Anna Belle as a playmate. The two smaller dollies are "Buster" and "Betsy"—Buster is a husky boy doll with a red striped sweater; "Betsy" is a little beauty and very lovable in her bright red coat. Both the little dollies are fully dressed.

The Best Playmates

Any child will be greatly amused with this doll family and will play all day with Anna Belle, Buster and Betsy. They are practically unbreakable and will stand hard usage for years. These dollies are better for the little folks than bisque or china dolls, because they won't break, soil their pretty hair or lose their eyes, and are so inexpensive every girl or boy reader can afford to own them.

Parents

Every little girl wants a big doll. Little boys also. Think of the innocent happiness and pleasure your child would derive from owning these three dolls. Then satisfy the craving for something to love and something to play with by sending for this outfit.

Lots of Fun

to be had with these three dolls. The little girl or toddling boy who owns these dolls will just be the happiest little tyke to be found for miles around. The big little girl who owns Annabell can dress her in her own clothes and have the loveliest time! Then the baby dollies—to cut and sew for—what could be more instructive and entertaining?

Don't Miss This Opportunity

Every little girl or boy wants a big doll—here's an opportunity to get three dollies instead of one. Just think what fun it would be to have a doll family in your home. Think of the joy and happiness of the little ones when they get this delightful set of three dollies.

Special 30-Day Offer

To introduce this big collection of dolls we will send one complete set (3 dolls) to you if you will sign the coupon below, and return it to us at once with 15 cents. If you are not entirely satisfied when you get the dolls we will return your money. Most dolls are imported and there is going to be a great scarcity this year, so we advise you to order early.

Bigger Than a Baby

SPECIAL 30-DAY OFFER

People's Supply Co., St. Louis, Mo.

Enclosed is 15 cents (stamps or coin) for which send me one set of dolls as advertised.

Name

P. O. State,

of farmers, decides that a co-operative company would help in solving some of the problems of the neighborhood, it will be well if a study first be made of the kind of company best suited to the needs of the community. A purely co-operative company, where it will be accepted by the people interested, is undoubtedly the best; where, for some reason, this is impossible the stock company may, as the next best thing, serve fairly well.

Many so-called co-operative companies are organized as incorporated stock companies. Where this is done with the usual vote by shares, and with perhaps no restriction as to the number of shares which any one stockholder may own, there is great opportunity for one, or a few stockholders, to get control of the company. Such an outcome as this gives an opportunity for a small number of stockholders to run the business on the basis of profit on investment instead of profit to the producer. Moreover, unless care be taken to prevent it, there is danger that much of the stock will be owned by men who are not farmers at all and whose interests are in a profit from investment only. A situation of this kind is sure to defeat the very purpose of the organization, and in many instances even the appearance of co operation soon disappears.

To guard against these difficulties the state of Wisconsin, a few years ago, passed a law providing especially for the incorporation of co-operative companies. Under this law each member has one vote irrespective of the number of shares he holds. A nominal dividend, as 6 per cent, is paid on stock, provision is made for the accumulation of a suitable surplus beyond which the main portion of any further surplus is paid back to the patrons as a trade dividend. This arrangement prevents control by a small portion of the members, and the making of a profit by one member out of the business of another member.

Early in the procedure a meeting of the interested farmers should be called and an organization committee chosen. By correspondence this committee may then obtain from the secretary of state at Madison, blank articles of incorporation. These forms permit the writing in of many provisions to suit each particular case. The secretary of state will furnish also a copy of the law under which co-operative companies may be organized. The incorporation fee is ten dollars, except in certain cases of very low capitalization in which it is but one dollar.

It is not necessary to employ much legal assistance. The state board of public affairs has a lawyer who devotes all of his time to matters of this kind and his services are at the disposal of any group of farmers wishing to organize a co-operative company. It is well to call in for advice and direction some man who has had actual experience in running a company similar to the one proposed.

The organization committee will fill out the articles of incorporation, together with such additions as may seem to them desirable. They will adopt, tentatively, a constitution and by-laws which at a subsequent meeting will be submitted to the members for approval. In this connection it is well to follow more or less closely some form that has been found to be satisfactory. A constitution and by-laws under which a cheese factory is actually operating is given on pages 29-31. Others may be obtained from the College of Agriculture, Madison, or from almost any co-operative company already organized.

After the above steps are taken it will be in order to get the signatures to these documents of the prospective members. In the meantime, shares of stock may be sold. After determining the value of a share, blanks should be obtained reading about as follows:

"We, the undersigned, hereby agree to take and we hereby subscribe for the number of shares set opposite our respective names and post office addresses, of the capital stock of the Company, a corporation, to be formed under and pursuant to the laws of the state of Wisconsin, with a capital stock of two thousand dollars (\$2,000),* divided into two

thousand shares of one dollar (\$1.00) each, for the purpose of securing necessary lands in....., and erecting and maintaining thereon a factory suitable and appropriate for the making of cheese and by-products.** We hereby agree to pay our several subscriptions to the treasurer of said corporation when organized, in such manner and on such terms as the stockholders or board of directors of said corporation may determine."

*Other amounts may be substituted.
**Other purposes may be substituted.

(THE END.)

SKUNK FURS BRING U. S. TRAP-PERS \$3,000,000 A YEAR.

Skunks Are Now Protected By Game Laws in 13 States—Suggestions For Raising the Animals As a Source of Income.

The skunk brings annually to the trappers of the United States about \$3,000,000. It stands second in importance only to the muskrat among our fur-bearing animals. The value of a skunk skin in the raw fur market averaged from about 25 cents to \$3.50 in December, 1913, and usually runs higher. Although this fur is not very popular in America, Europeans favor it because it wears well and has a luster which makes it rival the Russian sable in appearance. These facts are emphasized in a new farmers' bulletin (No. 587), now being sent out by the United States Department of Agriculture, which may be had free on application by those who are interested in the "Economic Value of North American Skunks."

Thirteen states now protect the skunk by game laws, and a fuller understanding of the economic value of these creatures to agriculture, as well as to commerce, will no doubt result in protective measures in other localities. The earliest legislation for the protection of these little animals grew out of appeals from hop growers in New York because of their value in killing the hop borer. This was in 1893, and since then laws have been passed for their protection in Maine, New Hampshire, Vermont, New York, New Jersey, Delaware, Ohio, Indiana, Illinois, Michigan, Missouri, Kansas and North Carolina. The closed season for the skunk varies in the different states, but in the opinion of the author of this bulletin it should be extended to at least nine months in every case, for at present there is a scarcity of fur animals and the increased demand for furs has put a higher premium on its pelt. Unless given more adequate protection, it cannot long survive a high premium. In advising this close season it should be understood that the right of farmers to destroy individual predatory skunks should always be reserved.

London is a great market for American skunk skins. In 1858 over 18,000 skins of this animal were exported to London; in 1911, over 2,000,000. Although only a small percentage of our skins are now dressed and made up here, we have received in years past a good number of them back after they have been made up abroad, and many American ladies who would scorn to wear a skunk skin have been proud of their imported "black marten" or "Alaskan sable" which was merely the American skunk fur more attractively labeled.

The process of dressing the skunk skin and removing any lingering odor has been improving year by year, and meanwhile the fur has been gaining popularity. The present extreme scarcity of Russian sable because of a law that forbids the taking of that fur favors the foreign market for the skunk, and even in this country the use of its skin is increasing.

The recent high prices for skunk skins have led to a discussion of the subject of skunk raising on a commercial basis. Although some breeders have encountered difficulties, on the whole there are good reasons for believing that a profitable industry may be developed. Skunks are less wild than other members of the family to which the more important small fur bearers belong and their diet permits a good deal of latitude in feeding, whereas, the marten and the

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mink require a diet almost exclusively of meat. The problem of providing pens for rearing them is also less complicated in the case of the skunk.

An inclosure for skunks should occupy a well-drained, sandy hillside, partly shaded by trees, and partly open land covered with grasses. An acre will afford room for about 50 adult skunks. A 3-foot fence made of poultry netting and having an overhanging barrier at the top is sufficient to confine the animals. The wire should be of No. 16 gauge and the netting of 1-inch mesh. This low fence, however, is not sufficient to keep out dogs, unless the overhang is very large and extends on both sides. Many breeders prefer a tight fence of boards or sheet iron or even a stone wall. The fence should penetrate the ground to a depth of two or three feet to prevent the skunks from digging under it.

Besides the general inclosure, a separate breeding pen for each female should be provided. Cheap boxes with wooden floors will serve every purpose, but they must be dry inside. Contact with the soil improves the fur but dampness must be guarded against.

Meat, fish, insects, bread, cooked and even raw vegetables, and ripe fruit are included in the great variety of foods which skunks will eat. Table scraps will keep the animals in good condition, and the food for a large skunk ranch may often be procured from hotels when usually it will cost nothing but the labor of removing it. Especially to be recommended are cakes and mush made of corn meal and bits of meat, fresh milk, cooked green corn and hominy. Little more than the amount of food required for a cat will supply the wants of a skunk.

While skunks usually breed but once a year in captivity, occasionally a second litter is produced. One male should be kept for from five to eight females. The mating season is in February or early March. The young are usually born in May and

are mature with prime fur in December. Careful selection year by year will result in a better grade of fur and in three or four generations it is possible to secure a strain of skunks the furs of which will all grade "No. 1." A No. 1 fur will bring from \$2 to \$3.50 or more in the New York market.

As skunks inhabit most parts of the United States, they may usually be obtained in the neighborhood where it is desired to breed them. The best method is to dig the young out of their dens in the summer. Additional data of interest to the skunk raiser may be had in the new bulletin which gives diagrams to aid him in making an inclosure for the animals.

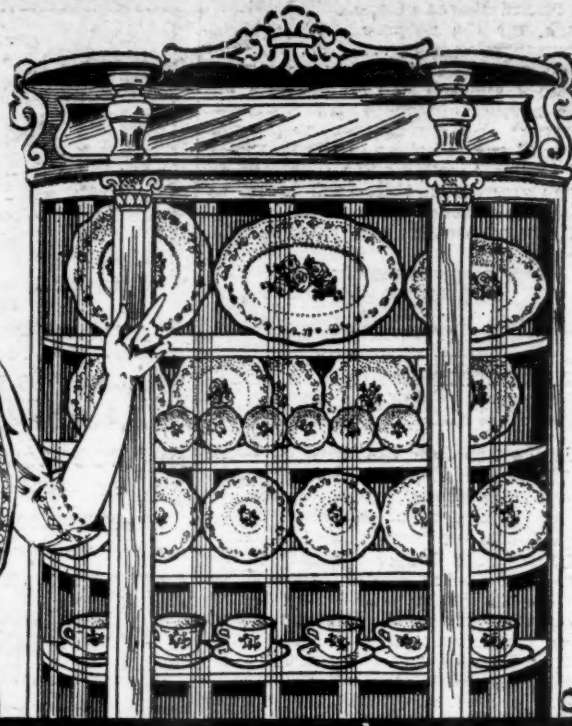
In capturing the wild skunk for its fur, trapping is a better method than shooting, for shooting impairs the value of the fur and generally results in its being defiled. Skunks are neither suspicious nor cunning and are easily trapped. They are often caught in unbaited traps placed in the paths they travel; yet the head of a fowl, a sparrow or a dead mouse makes an excellent bait. Skunks when trapped do not often discharge their scent so as to defile the fur, but care is needed in removing them from the trap. The new bulletin goes into greater detail in describing skunk traps and how to remove the animals after they are caught.

Selecting the breeding stock is the most important operation in establishing the flock. It would be a much simpler problem if the visible qualities, such as form, were the only ones concerned, but such is not the case. Functional characteristics, such as fecundity and good milking qualities, are equally important. Too much attention cannot be given to this phase of selection. Upon success or failure of proper selection depends the advance of retardation of the flock. The old adage, "Well begun is half done," was never more appropriate than in this respect.

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The coupon starts everything. Sign it and we will send you a large illustration in colors, showing this beautiful Dinner Set with its handsome decorations of red, green and gold.

We will also send you a sample set of Art and Religious pictures. These pictures are in many colors, and are made for us by the famous James Lee Company of Chicago, whose pictures are to be seen in homes all over the world.

Our Dish Plan Is So Very Easy.

When you get these beautiful pictures I want you to show them to 16 of your neighbors and friends and get them to hand you 25 cents each in connection with a special offer I will tell you about when I send you your set of pictures. When you tell them about our great offer they will thank you for the opportunity to help you. Each person who hands you 25 cents is entitled to two of our famous pictures. I will send the pictures to you so you can hand them to your friends when you tell them about our offer. In addition to the two pictures each person also gets a special subscription to our big farm paper.

You Will Be Surprised.

You will be surprised how very, very easy it is to get this set of dishes. No previous experience is necessary. When you get your dinner set you will be delighted and all your friends will envy you.

It is so very easy to get this set of dishes that many of our readers earn two, three and even more sets, and sell the extra sets to their friends at a big profit. Now, if you haven't already signed the coupon below, do so before you forget about it.

Sign the coupon—it starts everything.

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Our plan is full of SURPRISES and DELIGHTS for those of our friends who are willing to lend a helping hand at spare times.

The very first letter you get from us will surprise you before you open it. It will also delight you by telling all about the big 40 piece post card collection which we want to give you in addition to the dishes. We give you the 40 post cards for being prompt.

These beautiful post cards will not only please you—but they are so rare and attractive and printed in such a gorgeous array of colors that you will be delightfully surprised.

Another Present for Promptness.

And still, THAT is not all. One of the prettiest surprises of all is kept a secret until the day you get the dishes and find a pretty present that you know nothing about.

Isn't this a fascinating idea?

And what makes it more so is that we have something nice for everyone of your friends and neighbors, too. We'll tell you ALL about it as soon as we receive the coupon with your name on it.

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Mail This Coupon Today

Colman's Rural World,
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I want to get a 33 piece dinner set and the 41 extra gifts. Send me the sample set of Art and Religious pictures, and tell me all about your big offer.

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DRY FARMING CONGRESS.

Every indication points to the International Dry-Farming Congress and Soil Products Exposition, to be held here October 7-17 being the largest and most comprehensive agricultural and industrial exhibition ever held in the Southwest. The United States government has appropriated \$20,000 for an exhibit covering every important phase of agricultural work and life including a collection of grains and grasses grown in sub-humid territories and all other agricultural products suited to those regions; illustrations of the most improved methods of recording growths conditions; demonstrating the amount of evaporation from time to time and adapting of land to agriculture; good roads bureau, importance of good roads; forest bureau, prevention of soil erosion; bureau of soils, weather bureau, bureau of chemistry and other bureaus will also have displays. The various state departments and colleges of agriculture will also be represented with exhibits of the resources of their lands. Horticulture, dairy and live stock, motor car and accessories, grain products and harvest home exhibits are other features contributing towards an epoch-making event.

Both national and local manufacturers in every line of industry have engaged space for large displays of their products. Some of these exhibits will show by "movies," complete processes of manufacture. A 16-acre tract of land will be occupied by exhibits of agricultural machinery manufacturers with actual demonstrations. Many of the leading railroads will also have comprehensive displays, in a special building.

The exposition will be opened on receipt of a wireless telegram from President Wilson. Gorgeous decorations and electrical illuminations are being installed. Daily parades of all descriptions will take place during the period of the exposition. Five bands of international reputation, including the Kiltie's have been engaged, together with ten other Kansas bands. A strong amusement program has been arranged. Barnes' European Hippodrome, featuring many acts shown for the first time, will be the leading free attraction. On the "Cowpath" will be seen "The World at Home," a production showing the various wonders of the world in actual portrayal.

The following method of testing soil for acidity (sourness), is recommended: Break open a moist clod (moisture is essential), insert one end of a strip of blue litmus paper sandwiched between two layers of clean filter paper, and press the soil firmly against the paper. After 10 or 15 minutes remove the paper and inspect. A change to pink or red indicates acidity. Repeat the test several times for confirmation of results. The filter paper may be omitted, but its use is strongly recommended, particularly when testing fine grained silt or clay soils which tend to adhere to the litmus paper and obscure the results. The fingers should never touch the end of the paper used for testing on account of the strong probability of getting an acid reaction from traces of perspiration or unclean hands.

If large fruit trees are pruned in the spring, it tends to produce more wood growth of the tree; fall pruning tends to produce fruit buds. But there should be no set time when a lot of pruning should be done. The proper time to train trees is in their first year's growth. Then they should be cut back and thinned so as to form a perfect type of head that you desire. Then go around three or four times a season with a sharp knife and cut out all suckers and undesirable branches.

The average value of Pennsylvania bituminous coal at the mines advanced from \$1.05 a ton in 1912 to \$1.11 in 1913, according to the United States Geological Survey. The average in 1912 was the highest obtained for bituminous coal in Pennsylvania for a period of 30 years, with the exception of the strike years, 1902 and 1903, when because of a scarcity of all kinds of fuel prices were abnormally inflated.